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A Clinical Lecture
ON
CASES OF APPENDICITIS.

Delivered at St. Bartholomew's Hospital on Feb. 17th, 1904,

BY ANTHONY A. BOWLBY, C.M.G., F.R.C.S. ENG.,
SURGEON TO, AND LECTURER ON SURGERY AT, THE HOSPITAL.

GENTLEMEN,—My own experience of clinical lectures is that the more truly they are clinical and the more intimately they deal with cases in the wards or with cases which have recently been in, and the less like books they are, the better. In looking over the cases which have been in my own surgical wards during the last few months I have been struck by the number of cases of abdominal surgery there have been and amongst these there has been quite a large proportion of cases of appendicitis. But in addition there have been cases of gastro-intestinal trouble, and also surgical cases in connexion with the ovaries and uterus. I shall have an opportunity of saying something about these another time. What I want to speak to you about to-day is some of the lessons which may be learnt from the cases of appendicitis which we have had in the wards in the last three or four months. I find we have had 17 cases of appendicitis which have come to operation and 13 of those 17 cases have been non-suppurative, the remaining four having been suppurative. When we come to classify these and to see how it was that these patients came to have operations done upon them we find very varying histories. Let us take one characteristic sort of history, that of a girl in Stanley ward who was one of the most recent to be operated upon. She is 16 years of age and gives this story. She has had four attacks of abdominal pain. The first attack occurred in June, 1902—that is to say, nearly two years ago—and came on suddenly in the night. It was localised on the right side, low down, was accompanied by sickness, and for several days afterwards by constipation and, her medical attendant adds, by fever. So you see it was a fairly typical case of appendicitis. The pain at night is a very curious fact in these cases of appendicitis. In a large number of patients the pain comes on at night and I have no explanation of that to offer you. But you have to consider what it is that could cause a sudden attack of pain in the night when the person is not doing anything actively by which he can hurt himself, and at a time when the last meal that has been taken has already been in the stomach or intestines for many hours. At any rate this otherwise apparently causeless attack of pain coming on at night is very suggestive of appendicitis. Well, this girl felt herself unable to go about her work in the morning but did not take to her bed until the evening. She remained in bed two days and then got up and felt quite well. It was a very transient attack. She has had four such attacks up to the present time, all of them more or less of the same character as those which I have been describing. It is alleged that her last attack, a month ago, was more severe and that she remained in bed for eight days. She goes on to say that if she takes any active exertion it brings on an attack. She tells us also that she is unable to eat anything hard and difficult to digest without bringing on an attack and that a long walk or bicycling has a similar effect. Now that is a pretty typical instance of one class of case and the following questions are suggested: What is it that happens to cause the sudden pain? How is it that it also goes away so suddenly? And also, how is it that the pain leaves the patient so little the worse for it?

There is another class of case altogether, illustrated by children as well as adults who have been in the wards, and their histories have been of attacks of abdominal pains which have not been localised anywhere in particular and were of doubtful nature. Let me tell you of a boy whom I have recently operated upon elsewhere, as he is a characteristic case of the kind I am now alluding to, for in his case the attacks of pain were not, as in the girl, localised to the right iliac fossa. He was alleged to have been liable to attacks of so-called "acute indigestion" for the last two years. The story was that often at night and sometimes in the early morning soon after getting up he would have attacks of sickness and pain and it was not thought much of because it was believed that he must have eaten something which disagreed with him. As I have said, he had no localised pain but he had attacks of sickness which, however, did not alarm his parents at all, for they concluded that they were "stomach attacks" and the boy got over them in the course of about a day, on the next day being as well as ever. Then a few weeks ago he had measles. At the time he had measles he had one of these attacks and the parents said to the medical man who was looking after him that they were quite used to them. The medical man inquired further and found that they were frequent and very transient but he could not find anything in the boy's abdomen to account for them. The boy got over the measles and at the end of his illness, when he was up and about again, he had another attack which began like the others but was more violent, and then he complained of pain in the right iliac fossa. He had never previously in other attacks complained of pain there, but said that the pain was all over the abdomen—a colicky sort of pain. This time he was found by his medical attendant to have a definite pain in the right iliac fossa and also some tenderness there, so that he could not bear it to be touched. And, of course, the medical man said at once: "This is an attack of appendicitis." The temperature was found to be 102·6° F. and the patient was altogether very ill when I was asked to see him. I did not see him that night but I did next morning. He had had a good night, had completely lost his pain, had no tenderness, and appeared to be perfectly well. So there again the attack was exceedingly transient, even more so than the attacks in the case of the girl. But in this boy there was a history of a great many attacks of pain in the abdomen, though none of them had given rise to the slightest suspicion of anything being the matter with the appendix. Now I want you to remember first of all that a very large number of attacks of slight appendicitis in young people, children particularly, may be associated with no pain in the iliac fossa at all, and there may be even no tenderness; but in most cases that is not even examined for because, as in the case of this boy, the parents do not call in a medical man. These are the sort of attacks in which the patient is almost certain to have frequent relapses. The case of the boy I have referred to illustrates pretty well that of another boy who is now in Darker ward. There is a history in this case of many attacks in which there was no evidence that the appendix was affected, and yet at the end of them all there came an attack which was definite appendicitis. But you can see now that although he has probably had only this one typical attack of appendicitis proper he has had many attacks of abdominal pain and sickness which were really due to the same cause.

The next point I want you to consider with me is, what was the matter with these appendices when I took them out? In the case of the girl, who had had four attacks, what was there to show? When I opened the abdomen there were no adhesions and when I got the appendix outside the cavity of the abdomen it presented practically nothing abnormal except that it was a little swollen and that it was sharply bent and kinked, so that it was bent almost to a right angle by a very short mesentery. Then, as to the appendix of the boy whom I have been referring to, who had but one definite attack of acute pain and distension and high temperature, though he had had many other attacks which had not been diagnosed as appendicitis, what was the condition of his appendix? It was very long, it contained some fæcal matter, and at its tip it was distended. But there were no adhesions, no inflammation, and in the neighbouring peritoneum there was nothing to make you say that the peritoneal surface had ever been inflamed at all. I have no doubt that the proper explanation of these attacks, which were so transient that they passed away in the course of a few hours, leaving the patient apparently perfectly well and no worse for the bout, was that the main lesion was not an inflammatory one. I am sure that in these patients there could not have been an inflammation of the whole thickness of the appendix involving its peritoneal coat, for if that were the pathology you would find adhesions in the neighbourhood after so many attacks. Yet in these cases we are referring to there were no adhesions. Well, what is the explanation of the attacks of pain? What is it that causes the sickness and the griping and how is it that these so suddenly pass away? I am sure myself the explanation is

that there is a distension of the appendix by secretion and that when this gets out after having been blocked up the whole of the symptoms rapidly subside. There have never been anything more than a distension and retention of such mucous fluid as may be formed in the appendix itself. The next thing is, what is it that blocks up the appendix, and why cannot the secretion get out? The answer to that, first of all, is to be found in the condition of both of these appendices which each contained fæcal matter; and if that fæcal matter is allowed to remain there a sufficient time it becomes hard and forms a concretion, although for long before that it has obstructed the passage through the tube. The appendix ought to contain no feculent material at all. Next, I told you that the mesentery was very short in the case of the girl and that the appendix was consequently bent. That bending or doubling up of the appendix you may easily conceive makes it difficult for the contents to pass along and so may cause distension. Then in many other cases when you remove the appendix you will find, on laying it open, that at some point it is very much narrowed. If you were speaking of the urethra you would probably apply to it the term "stricture" and I think you may use the same term quite correctly in connexion with the appendix. Any one of these conditions, then—namely, fæcal contents, kinking, or stricture, or more than one of them, will be found to be quite sufficient to account for the stopping of the lumen of the appendix and the retention of secretion inside it. It is in those circumstances I believe that these sudden, acute, transient attacks occur. Next, why do they occur? What brings them on? Why should a patient have an accumulation of anything at all inside the lumen of the appendix? Let us remember this: that the lumen of the appendix is after all very much like the lumen of the rest of the intestinal tract, and that, just like the rest of the intestinal tract, it may be affected by external conditions, such as cold and wet, and also by internal conditions such as bad food, or food which irritates the inside of the bowel. So that any of these conditions which we know may easily cause catarrh in the intestine may, and probably do, cause catarrh in the appendix. Whatever is the pathology of catarrh in the intestine is also the pathology of catarrh in the appendix and I think it is a very easy thing to explain how, in a part where catarrh has occurred before, thick mucus may be rapidly formed as a result of either errors in diet or exposure to cold and wet.

Now let us consider another class of case altogether. There was a soldier sent in with the story that he had had a very acute attack of appendicitis and that the army authorities were unwilling that he should return to serve until he had had his appendix removed. We found that he was a fine, healthy-looking young man, and the history which I got from the surgeon was that he had had a very violent attack of acute appendicitis with some peritonitis, that he had been taken ill with a great deal of general abdominal pain, sickness, and much flatulent distension of the bowels, a high temperature and rapid pulse. The question was raised whether he ought to be operated upon there and then by the surgeon, but they managed to tide him over the attack, though it was very severe and prolonged, and it was a week or two before his temperature came down to normal. Altogether he was in bed for several weeks and then he gradually picked up and got well enough to come to the hospital to have the appendix removed. I operated upon him and when I opened the abdomen I found that everything was adherent in the right iliac fossa. After a good deal of trouble we freed the omentum and separated the adherent intestine and after further trouble came down to the under part of the cæcum where the appendix is attached. There we found a mass of old granulation tissue and we found also the stump of the appendix and that was all. The appendix had been destroyed and undoubtedly the rough bare place which we exposed on the under surface of the cæcum was the place where there had been an abscess which had probably opened into the bowel. As it turned out, the operation upon that man, surgically speaking, was unnecessary. Of course it was necessary from one point of view because unless something could be ascertained definitely as to the condition of the appendix and the man's liability to have another attack of appendicitis it was evident that he was not fit to be a soldier. In precisely similar circumstances I operated a year ago upon a young officer. His story, which again was sent to me by his army medical officer, was a clear one. It was as follows. When near the north-west frontier of India he was taken with a very violent attack of pain and sickness which was believed to be due to peritonitis. He was desperately ill and he lay in bed for six weeks. His recovery was very tardy. He was then told: "If you are to stay in the army you must get rid of your appendix." And he came over here for the purpose of having it removed. I operated upon him and found almost an exactly similar condition of things to that I have just described. The man had quite evidently had acute inflammation with the formation of an abscess and complete destruction of his appendix. And though we found the stump of the appendix—and I should not have been satisfied if I had not—we became convinced that nearly the whole of the appendix had been destroyed. We felt certain that he had had inflammation which had gone on to suppuration, that this suppuration had destroyed the appendix, and that pus had made its way out by an opening into the cæcum. There again there was really no necessity to have operated. You must remember then that the acuteness of the attack is not by any means an indication of the necessity for the subsequent removal of the appendix if the patient is an adult but rather the contrary. Indeed, if you find that an adult has had a very violent and prolonged attack of such severity as to threaten his life, the probability is that there may be no necessity to operate for the removal of his appendix, because it is very likely that it will have been destroyed. In some such cases as these you will find a definite history that pus has been passed by the bowel, and if you can definitely ascertain that pus has been passed by the bowel I think you may say that there will most likely be no necessity for operation. But you cannot always get that history, because the pus may be disintegrated in the bowel or may find its way only slowly into the intestine so that no great quantity at any time may find its way into the motions, and then you have to rely largely upon the history of the severity of the attack. For many years I have been inclined to advise people not to have the appendix removed because of one very severe attack, and the more severe, the more prolonged, and the more dangerous that attack has been the more it has seemed to me that there is no necessity for operation, for the severity of the attack has probably resulted from an inflammation which has exterminated the very organ which was the seat of the mischief. A fortnight ago I operated upon a patient in whom there was a history of two attacks, and it was because there had been two attacks that I advised operation. The first attack was not a bad one, but the second was. Still it did not seem to be so bad as to make it probable that the appendix had been destroyed, so I operated. When I opened the abdomen I found everything matted to the side of the abdominal wall. With a good deal of difficulty and trouble I separated the adherent cæcum which was unusually high up, and having got it out into the wound and looked for the appendix we found the place from which the appendix sprang from the cæcum and after tracing it through some inflammatory exudation and adhesions we found it came to an abrupt termination and was adherent to the cæcum in its neighbourhood. During that examination which was necessary in order to satisfy myself that the appendix was really destroyed I found that I had separated adhesions and had actually got a hole into the cæcum. I had not made the hole, but I had uncovered a hole which had previously been covered by the adhesions which had closed it. That was another case in which suppuration had evidently destroyed the appendix and in which except for freeing adherent omentum my operation had done no particular good; indeed, if one had made much of an opening in the cæcum it might have done harm; but I managed to close the hole and to shut up the wound. Probably the appendix in this case had been destroyed by the second attack. I could multiply these cases and of those which I have seen where there has been a definite discharge of matter by the bowel I have never had one of them afterwards in which it has been necessary to remove the appendix, nor yet where I have heard that the patient has had another attack. Therefore I want you to appreciate that there is a great deal of difference between these cases of a single, acute, prolonged attack of a dangerous character, especially in adults, and those frequently recurring attacks in children and young people of a slight and transient character which are liable to go on recurring and to get worse. It is for such attacks as these that I always advise the friends and the patient to have an operation

done, because in any one of them with distension of the appendix by fluid which cannot make its way out the wall of the appendix will be inflamed and softened and may give way under the strain, the fluid may escape into the general peritoneal cavity and set up peritonitis, and this final attack with peritonitis may terminate the patient's life. So remember that the fact that there have been many very slight attacks does not mean that there may not yet be a very severe one with danger to life. And the risk of such an attack is a great deal more than is the risk of removing the appendix between the attacks.

Then there are some other cases of appendicitis to which I will allude briefly, cases of suppuration, and some of the patients are in the hospital now. There was a youth in Darker Ward who came back from the convalescent home to-day, but when he was admitted in November he was very dangerously ill. His age was 18 years and the history was that five days previously on a Friday evening at nine o'clock he felt pain in his right groin and was sick all night. In spite of that he got up to go to work on Saturday morning but he felt so ill when he arrived at his work that he had to leave and he came on to the hospital. When he reached here his temperature was 102·8° F. and his pulse was 96. He walked into the hospital and there was nothing very noticeable about him except that his general appearance suggested that he was very ill. In the right iliac region there was found to be a slight swelling and the skin over it was red and felt hot to the touch. That evening his temperature came down to 100°. You might have said that this was rather satisfactory because it looked as if he were going to get better. But whilst his temperature was reduced from 102·8° to 100° his pulse increased from 96 to 112. That is, of course, the wrong way round; instead of his pulse coming down with his temperature it rose. I did not operate upon him that day; I thought that as he had only just been put to bed we would wait and see what was going to happen. Next morning his temperature was only a little above 100° and his pulse was 104. In the afternoon when I saw him his pulse had risen to 116 and before I operated it had risen to 120 and he had a good deal of abdominal pain. His temperature was now only 99·8°. I then opened his abdomen on the right side and found that he had a very extensive abscess which went down to his pelvis with very ill-defined boundaries. I expect that if I had opened his peritoneal cavity in the middle line or on the other side I should have found that there was some inflammation of it, though probably no pus inside the general peritoneal cavity. The reason we operated upon him was partly because of his increasingly rapid pulse and partly because he continued to be sick in spite of our stopping feeding by the mouth. His abdomen also was distended and he did not pass flatus. When we opened the abdomen we let out a large quantity of stinking pus and there was a good deal of sloughy tissue all round, and for a long time afterwards the patient was desperately ill though he ultimately made a good recovery.

Now let me tell you of another case which I have seen very recently which illustrates this point about the temperature very well. A girl, aged ten years, was taken ill suddenly with a rigor and pain in the abdomen. The history was that about three months previously when in the country the child had had a similar attack accompanied by abdominal pain and sickness for three days and difficulty in micturition, distension of the abdomen, and difficulty in passing flatus; and with all this there was a temperature of about 102° F. The child got over the worst of that attack in about ten days, though some abdominal discomfort persisted for several weeks. The next attack began on a Thursday and on the Friday I saw the patient. The abdomen was distended and the child was very sick, the pulse was 140, and the temperature when she was put to bed was 102°, though that morning it had come down to just under 100°. The same evening, no food having been given by the mouth, she had been less sick. I did not see her on the Saturday as she was better and the sickness had stopped, but on the Sunday her temperature was normal and her respirations were normal too. The pulse was 130. Sickness had not returned, the abdomen was not distended, the bowels acted with enemata, but there was a great deal of pain in passing urine. The absence of sickness was a good sign, the absence of much distension of the abdomen was also a good sign, but it was noticed that the abdomen moved very little on respiration. During the next night, which was Sunday night, the temperature still kept normal and the pulse did not increase further in rapidity but was rather slower. It was 120 next morning with a normal temperature, yet during the night the child had been very sick again and the abdomen was very hard, it moved very little on respiration, though the child did not complain of any material pain. So, you see, there was an anomalous condition. There was no bad pain and the temperature was normal, but, on the other hand, there was a pulse which remained high, though it was not increasing in rapidity, a hard abdominal wall, and a return of sickness in spite of feeding by the mouth having been discontinued. In these circumstances it was much better to operate. No particular stress was laid on the temperature, though it was normal; it was much more important to lay stress on the return of sickness and the hard and fixed abdominal wall. I therefore operated and found pretty much what I expected to find—namely, a considerable collection of pus in the pelvis, the evacuation of which gave speedy relief.

Let us take another case. There is a boy at the present time whom some of you have seen in No. 2 Darker Ward; he came in with general abdominal distension but very little pain and with a normal pulse of 80. When I saw him he had a good deal of general distension of the abdomen but with a normal pulse and no sickness or pain; there seemed to be no sufficient reason for operating upon him and I did not operate. The next day he continued to be on the whole satisfactory and Mr. R. C. Bailey, who saw him, concluded that there was still no indication for an operation, especially as the bowels had been freely opened and he was much more easy. But instead of the symptoms further subsiding the patient was taken rather suddenly very much worse the next day and Mr. Bailey found him in an almost pulseless condition and desperately ill, so ill that the anæsthetist hardly thought he would get him off the table alive. He had general peritonitis yet without his having had any of the characteristic symptoms of peritonitis until he had been in the hospital 48 hours. That shows how the best of rules may go wrong. His pulse was not increasing in rapidity, he was not sick, his bowels were freely opened, and yet he had a large collection of pus and general peritonitis. Fortunately up to the present time he seems to have gone on sufficiently well to lead us to hope that he will recover altogether; but he has had many complications and one of them is very common in cases of diffuse appendicitis—namely, suppuration in the upper part of the abdomen as well as in the lower part—a subdiaphragmatic abscess. And he has had another complication which is common—namely, a secondary abscess in his pelvis, that is to say, he has had diffuse peritonitis with localised collections of pus in the upper and lower parts of his abdomen and pelvis. A curious thing about his case is that in each fresh abscess the symptoms have been cumulative. He went on well for a week after the abdomen was freely opened and at the end of that time he was again taken very much worse and Mr. Bailey accordingly operated and let out pus from beneath the diaphragm. Then again he went on satisfactorily for a week and whenever I saw him he appeared to be doing well and expressed himself as cheerful and happy and free from pain. But I received a message one evening to say that he had been suddenly taken much worse. I found he had a good deal of tenderness over his pubes and difficulty with his urine, and I opened up his abdomen by an incision in the middle line and let out a large collection of pus in his pelvis, about one and a half pints, which probably had been there for several days, yet had given no symptoms of its presence. It seemed that until the accumulation went beyond a certain point there was no evidence forthcoming of what was going on inside.

Now, another word about one condition noticed in two of the patients whose cases I have mentioned—namely, painful micturition. You will find in many cases of acute appendicitis that there is pain in micturating and sometimes a good deal of difficulty about it as well. I think the explanation of that is almost always to be found in the fact that in these cases the inflammation has spread into the pelvis. In many cases where the pain is yet worse there is a definite collection of pus in that region, a pelvic abscess. In the little girl of whom I spoke the pain was most characteristic and it was the pain on passing urine which made one say that very likely there was a collection of pus in the pelvis, for when there is pelvic peritonitis micturition is often very painful indeed, though there is little to be felt externally. When you remember that pus forming in the pelvis may not be perceived by examination of the anterior abdominal wall

you will see how important it is to pay attention to the complaint of painful micturition and to the examination of the patient per rectum. In the majority of cases of appendicitis such an examination is of as much importance as examination of the anterior abdominal wall. For you must remember that a large part of the peritoneal area is not accessible through the anterior abdominal wall by palpation and you can often find per rectum a definite swelling which would not be evident from the front. You will thus be led to diagnose pelvic peritonitis which otherwise might have escaped you, for the rest of the peritoneum of the patient may be completely free from mischief.

The Milroy Lectures

ON

DEATHS IN CHILDBED: A PREVENTABLE MORTALITY.

Delivered before the Royal College of Physicians of London on Feb. 25th and March 1st and 3rd, 1904.

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LECTURE III.[1]

Delivered on March 3rd.

PREVENTIVE MEASURES.

MR. PRESIDENT AND GENTLEMEN,—Notwithstanding the precautionary measures adopted in general midwifery practice, the alarming fact that 4000 mothers are annually lost in England and Wales still stares us in the face. What, then, is our duty in respect of this high puerperal mortality? Are we to trust to the repetition of *Abracadabra* as extolled by Sammonicus, or are we to go to bed and dream about it as directed by Galen? This we have tried long enough and naturally without any beneficial result. This same question was asked many years ago and it occurred to some benevolent persons that the solution of the problem was in the establishment of lying-in hospitals, where women—poor, destitute of comfort and means, as many are at their own homes—should be received and delivered. These institutions after many years of anxious trial have answered admirably and it is to means similar to those which have been found efficacious in diminishing the mortality in them that recourse must be had to procure a similar reduction in general practice. To use the significant and beautiful sentence penned by the late Mr. T. W. Thompson of the Local Government Board, "Such improvement can only be brought about by a *full* appreciation of *all* that is known of the etiology of the disease and an adequate sense of the responsibility on the part of *all those* brought into relation with the lying-in chamber." Dr. Cullingworth has strongly advocated the more general use of antiseptics in private practice and has particularly urged that every practitioner should recognise his individual responsibility in this matter. To bring about this diminution of mortality is a work in which various sections of the community must take part, such as the parturient women themselves, the midwife and medical attendant *in particular*, the medical officer of health, the sanitary inspector and public bodies such as local sanitary authorities and county councils, and the legislature.

Young women about to become mothers require instruction and special care, for by leading a natural life in conformity with the laws of health they often save both themselves and offspring, for few women in advanced pregnancy can stand the hard work to which, alas, they are too often exposed. Although childbirth is a physiological process and in favourable circumstances (where the mother has been previously taken care of) is attended with little danger, yet every childbearing woman looks for some help in her travail; but many, even in these enlightened days, are left to nature or to ignorant midwives.

Women in all ages and countries have done much noble work as midwives and as nurses—the mother of Socrates was a midwife, "brave and burly." A large proportion of mothers have been from time immemorial attended by midwives, and educated midwives as well as medical men are required to secure the best chance of life to the mother and to the child. This is a natural and excellent arrangement, as midwifery is a business for which intelligent women are admirably fitted. Until lately, and even now in some places, it was assumed that midwives were born and not made and their training was entirely left to chance. At the present time it rests on very unsatisfactory foundation, although systematic instruction has been imparted to them in some quarters. A very common cause of death in childbed is simply "the want of skilled assistance" and a mother's life often hangs on a simple act which can be easily performed by any intelligent woman who knows her work. In the absence of this the mother dies. There is scarcely a person whose life, or whose mother's life, might not at one time have depended upon the skill of a midwife. Newton had a narrow escape; and Goethe begins his autobiography by saying that through the unskilfulness of a midwife he was born for dead and that only after manifold efforts on the part of those around him he saw the light of day. It is true that a medical man can be called in, but in scattered and mountainous districts he is not always at hand when danger is imminent. To discover danger a knowledge of its sources is required and those of us who have come in contact with midwives of the Sarah Gamp type are well aware that ignorance does not diminish their self-confidence. No one who has reflected upon this subject, and certainly no one who has had practical acquaintance with it, will contend that the annual loss in England and Wales of over 4000 mothers in childbed is not deplorable. Certainly nothing should prevent those that have the public health at heart from giving this subject their most attentive consideration. This matter has not received the attention it deserved either at the hands of the legislature or at those of public authorities. The provisions of the Midwives Act, 1902, will, in my opinion, meet the case to a great extent, but I would suggest that the training of midwives is a typical form of technical education and is a work that ought to be undertaken by county councils. Certainly, in some way or other, assistance should be forthcoming to help intelligent women to fit them to render "first aid" to their sisters in travail. The utility of a recognised body of educated midwives acquainted with the plain doctrines of health and capable of rendering assistance during labour would be incalculable to the community at large. I do not mean that midwives should displace medical men in any way, where such can be obtained, but they should be in a position to render valuable aid before the arrival of the practitioner and to carry out his instructions faithfully as to the administration of remedies, the use of the syringe and catheter, general cleanliness, the warming and ventilation of the room, the diet, and a thousand and one other acts on which the health and life of the mother depend. The medical officer of health and the sanitary inspector can also render great help towards diminishing this mortality. The infected premises should be visited as soon as possible and as soon as the case is over all sanitary defects should be remedied, the house should be fumigated, and the clothing of the midwife, the soiled linen, and the like of the patient should be passed through a disinfector or, failing this, be destroyed. The midwife should undergo thorough antiseptic ablution, especially of such parts as the finger nails, that are the most likely to retain infection. This is impossible in districts where disinfectors have not been provided, and they are many. It therefore becomes incumbent upon local authorities to procure such, and none should be considered fully equipped unless it has a bath-room and dressing-room in connexion with it. Before the medical officer of health can be expected to accomplish these duties the tenure of his office must be secure and his salary must be adequate.

There are other avenues—now more or less shaded or obscured by the midwives question—along which some of our efforts might well be directed. Every girl among the poor and artisan classes should be taught the elementary principles of nursing and hygiene. The establishment of lying-in institutions should be encouraged in these localities and the parturient poor induced to become patients over their confinements. It is true that the guardians of the poor provide a lying-in ward in their workhouse infirmaries; and there are scores of women in poor circumstances who

[1] Lecture I. was published in THE LANCET of June 18th (p. 1701) and 25th (p. 1772) and Lecture II. in THE LANCET of July 2nd (p. 4), 1904.

would gladly enter a maternity but refuse the lying-in ward of the workhouse because of the *stigma pauperis* connected with it and accept the alternative of remaining at home, to be there—may be, in the heart of unhealthy influences—attended by unskilled women and often to face the risk of being fatally infected. The dissemination of elementary knowledge of the nature indicated might well be encouraged by our county councils and local authorities and this matter is engaging the attention of the Glamorgan county council with a view to secure the better training of midwives. I have endeavoured to show that a very large number of poor women who are unable to obtain the services of medical men are attended in childbirth by midwives alone; how often it is that fatal results, and even epidemics, follow ignorance on their part of the means to prevent infection, and their inability to diagnose danger in time; and I feel convinced that this mortality in childbed among the poorer classes can be very materially diminished in the several ways I have indicated, especially if they are attended by sober and intelligent women, acquainted with the plain doctrines of health, and possessing an elementary knowledge of midwifery.

Before dealing with the Midwives Act it would be well to give a very brief epitome of the various steps taken that brought it about. I am indebted to contributions and notes prepared by Mr. F. R. Humphreys, honorary secretary to the Midwives Bill Committee, for the particulars contained in the following historical sketch. He who would wish to write anything like a complete history of these steps would have to ransack the history of England and to search the records of Church and State for centuries in order to obtain the ups and downs of the Guild of Midwives. I do not propose, however, to refer to the past except so far as it is necessary to explain the condition of affairs that has caused the postponement in England of legislation which was secured by nearly every other European nation many years ago. Before the time of Henry VIII. the medical profession was controlled by the Church and the bishops licensed physicians, surgeons, apothecaries, and midwives alike, but when the faculty began to manage these matters midwives were ignored. At this time there was no clear difference between the branches of medicine, surgery, and midwifery, and it was after the formation of the Royal College of Physicians of London in 1518 that the change was brought about. In 1541 an Act uniting barbers and surgeons was passed. In 1618 Dr. Peter Chamberlen entreated James I "that some order may be settled by the State for the instruction and civil government of midwives," and it was his son, who was physician to three kings and queens of England, that moved the Court to organise midwives into a company This was effected by the Royal College of Physicians and Dr. Chamberlen alluding to the arguments of his opponents says: "The objection infers this much—because there was never any order for instructing and governing midwives therefore there must never be. Because multitudes have perished therefore they must perish. Because our forefathers have provided no remedies, nor knew any, therefore we must provide none, though we know it. If all our forefathers had subscribed to this argument there had never been beginning to those conveniences we now enjoy, and we had been left to the world's first ignorance and nakednesse." From that day to this proposals have continued to be made from time to time for the instruction and government of midwives, and during the seventeenth century Harvey began his work of raising midwifery into the comparative light which he created.

It was after the invention of the obstetric forceps in the seventeenth century that men-midwives began to take up the work in earnest and by the middle of the eighteenth century their number and notoriety had so increased that the competition between them and midwives actively commenced, and gradually midwives fell into disrepute, and men-midwives gained a stronger position in the mind of the profession and the public. The death of Princess Charlotte of Wales and her unborn son, a death which led to the ascent of the late Queen Victoria to the throne, did much to accentuate this progress and for the first time in our history a Queen of England was attended in her confinement by a man. The control of the Church over midwives seems to have died out by this and from that time there has been no legal control over them up to the passing of the Midwives Act. The dawn of scientific midwifery was accompanied by efforts of a more or less spasmodic and half-hearted nature to raise the status of midwives and when lying-in hospitals were first established these efforts became more and more continuous and firm and many proposals were from time to time made, stimulated doubtless by the fact that nearly every country in Europe had by this time framed enactments dealing with the instruction and supervision of midwives. In 1813 the Society of Apothecaries appealed to Parliament to legislate on this question but it failed. Unhappily Parliament was so prejudiced against midwives then and long afterwards that "the committee of the House of Commons would not allow any mention of female midwives." Professional feeling also against man-midwifery had assumed a strong character and the Royal College of Physicians of London passed a by-law prohibiting any person practising midwifery admission to its Fellowship. "The Obstetrical Society"—the ancestor of the present one—was then started and the object which it adopted as its basis was "the amelioration of the political position of the male and female midwives" and petitions by it were addressed to the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries, asking them to coöperate to restrict the indiscriminate practice of midwifery, with the result that the Society of Apothecaries alone was found to be willing to undertake an examination in midwifery but had no legal power to do so. Notwithstanding this it at once presented a memorial to the Home Secretary, praying that it and the Royal College of Surgeons of England (which had already fallen in line with them) should be given the necessary power to institute examinations in midwifery and making it penal for any *man* to practise midwifery unless he was a legally qualified physician, surgeon, or apothecary. Eventually the society succeeded in establishing an examination in midwifery and in the admission of obstetric practitioners to the Fellowship of the Royal College of Physicians of London and to the Council of the Royal College of Surgeons of England. After these its first successful attempts on behalf of the male members of the obstetric profession, the society quietly died out, although its original scheme contemplated the remoulding of the midwives as well.

In 1843 the Royal College of Surgeons of England inserted a clause in its new Charter rendering any Fellow practising midwifery ineligible for the Council. In 1861 the Royal College of Physicians of London established the diploma of Licentiate and made midwifery a compulsory subject, and it was also about this time that the present Obstetrical Society held its inaugural meeting when numerous references were made to the uneducated and uncontrolled condition of women who were allowed to practise midwifery and to the unhappy lot of their patients, and to the excessive mortality in childbirth that was taking place throughout the country. Miss Florence Nightingale took up the question and succeeded in having a lying-in ward opened at King's College Hospital for the supply of material on which to instruct midwives. The juxtaposition of the lying-in cases with the wards containing pyæmia, &c., resulted in a terrible loss of maternal life and the ward had to be closed in 1867. I have already quoted the words used by this benevolent lady in her description of the Shorncliffe and Colchester maternities. About this time the higher education of women also began to be discussed and the first profession to which they tried to gain access was that of medicine, and after many years they succeeded as they eventually do in most matters. This question of sex militated against any progress being made in the different questions of the education of midwives, but in 1864 was started "the Female Obstetrical Society," its objects being: (1) to promote the employment of educated women in the practice of midwifery and the treatment of diseases of women and children; (2) to provide facilities for studying midwifery similar to those given to men; and (3) to establish a recognised board of examiners. At its second annual meeting a resolution was passed complaining of "the utterly unregulated state of female practitioners and the great public inconvenience and frequent loss of life which occurred for want of properly qualified and scientifically trained midwives." During the discussion Dr. Farr is reported to have said that "he believed that the medical profession, however, much as they might oppose female doctors, would be glad to see educated young midwives take the place in every district of ignorant old women, and that he hoped to see the day when less than five women die out of every 1000 delivered of children." Dr. Farr's prophecy has been fulfilled.

In 1869 Dr. Farr suggested to the Obstetrical Society the

investigation of the causes of infantile mortality, and a committee was appointed and a paper of questions was sent to each Fellow, whereby it was ascertained that "though in small towns the percentage of poor women attended by midwives was not more than 5 per cent. to 10 per cent.; in the large provincial towns and in the villages from 30 per cent. to 90 per cent. of the confinements were in the hands of women. Thus, for example, in East London 30 per cent. to 50 per cent. of the women had no doctor, and in the mining districts 90 per cent." (On comparing these returns with others obtained a few years ago by the Midwives Institute it seems that out of 4000 confinements 2500, or 62 per cent., were attended by midwives.) At this time the qualified medical man was not required to qualify in midwifery and only a few examining bodies granted such diplomas and the profession was opposed to a partially qualified woman entering it. Dr. Farr had been for years continually calling attention in his letters in the Appendices of the Registrar-General's Reports to the excessive mortality from puerperal fever that was taking place. Dr. Farr observes: "The deaths by childbirth were 2275, besides 972 by metria in the zymotic class, making 3247 deaths in the aggregate. One mother died in 192 children born alive." And the physician will, from the same facts, see how much art has to accomplish before the 3000 English mothers who perish annually in giving birth to their offspring can be spared. Natural and adventitious difficulties are in the way but they may in many cases be overcome, for "in sorrow" and not in death thou shalt bring forth children, that is the law of nature (fifteenth report). "The death of young women in child-bearing points to some of the dangers to be guarded against and many of the remaining dangers would be removed by a class of educated midwives" (seventeenth report). In the report of 1856 Dr. Farr presents matters as a little more hopeful and says: "The mortality in childbirth continues to decrease in England and Wales; the birth of every 10,000 living children was the death of 60 mothers in 1847 and of 44 in 1856; thus 16 are now saved in every 10,000 children born. This happy result encourages its cultivators to redouble their exertions" (nineteenth report). "This branch of medicine is cultivated in the present day with extraordinary zeal by men of superior quality; and a society recently has been formed for the cultivation of this important work" (twentieth report). Dr. Farr evidently refers to the formation of the Obstetrical Society. "Many men die of hernia, many women in childbed, who might have been saved by surgical skill" (twenty-seventh report). In the report for 1867 attention is called to (1) the infectious nature of puerperal fever; (2) its connexion with erysipelas and scarlet fever; and (3) to work in the dissecting room, &c., and to the deaths of child-bearing women in towns and country districts. "In towns they are more exposed to puerperal fever; in the country many probably perish from want of skilful help." "Nothing in England approaches the fatality of mothers in Wales, where they must be greatly mismanaged." Further on he refers to the discussion going on in medical circles on the excessive mortality in lying-in hospitals. "Cases in country are in the hands of midwives and men who are sometimes skilful by nature but often are not versed in the art as it is now practised by the skilful. Educated nurses as well as physicians are required to secure the best chance of life of mother and offspring" (thirtieth report). "Thus the contagion of scarlet fever in some cases lights up puerperal disease which has not yet been distinguished from puerperal fever. So does erysipelas and so perhaps do other diseases. The dangers of a general hospital to puerperal women have been revealed by recent experience. Students cannot study in the dissecting-room and at the same time practise midwifery without risk. Nurses are often the medium of the disease, nothing is more fatal than any of the forms of dirt and uncleanliness in the lying-in chamber. When fever comes on disinfectants should be strenuously used. By the greater attention this subject will attract now its full importance is precisely known we may hope to see a great diminution in the risks of childbirth." Here Dr. Farr refers to the closure of the lying-in ward at King's College Hospital and probably to the discovery of Semmelweiss (1847) and specially to the excessive mortality that was annually taking place in our lying-in hospitals. In this year Queen Charlotte's Lying-in Hospital had to be closed on account of an epidemic of a severe and fatal nature lasting for many months.

In 1868 the General Medical Council advised increasing the courses of lectures in midwifery at the various medical schools, so that every student should attend at least 20 cases, and, further, that they should have received instruction in the special diseases of women and children. In 1869 the Obstetrical Society did not actively take up the question of the education of midwives (because probably some of its prominent members believed all midwives to be a mistake and would be soon superseded by men) when Dr. Graily Hewitt spoke of the value of the society as a school of obstetric medicine and said, "It is indeed a question whether it be not the duty of the society to take steps for obtaining some legislative enactment to check the licence which existed in relation to the employment of midwives, many of them quite unskilled and uneducated." About this time a school was established at Sir Patrick Dun's Hospital, Dublin, for the training of midwives attached to the regiments in the English army. This was a great success; six months' training was given, each midwife had to attend from 30 to 70 cases, to attend lectures, and to pass an examination. The establishment of this examination seems to have been a turning point in the whole matter. In 1870 the council of the Obstetrical Society passed a motion in favour of the institution of a voluntary examination for midwives but it was not until 1872 that the scheme of such an examination was presented to the society and passed unanimously. The examination was "to consist of practical testing of the competency of the candidates to practise as midwives and the possession on their part of such an amount of knowledge as would enable them to recognise the presence of difficulties and the necessity for at once procuring competent professional aid for their patients."

In 1872 the General Medical Council passed two motions:—

1. That a committee be appointed to consider and report whether the General Medical Council has power to make rules for the special education of women, such as may entitle them to obtain a qualification to be certified by the Council and that the committee do report for that purpose whether such qualifications (if any) should be granted.

2. What are the most desirable means for educating, examining, and certifying in respect to them, with special reference to midwifery, the management of medical institutions, dispensing, and nursing.

In 1873 the above committee reported that the Council "had not the power to give qualification or to make a special examination for women"; it recommended that in any future Bill for the amendment of the Medical Act a clause should be introduced giving power to the Council to register the qualifications of women acting as midwives, dispensers, and superintendents of medical institutions. In the same year the council of the Obstetrical Society referred the matter of examination and registration of midwives to a committee which reported thus: "The Obstetrical Society of London having had repeatedly and urgently brought before its notice the sacrifice of human life and health occasioned by the practice of ignorant midwives has already instituted an examining board for testing the knowledge of women desiring to follow the calling of a midwife and has granted certificates to those who have satisfied the examiners." In the same year Mr. Ernest Hart was asked by the President of the Local Government Board to draw up a scheme for the regulation and education of midwives. The matter was then brought before each separate branch of the British Medical Association and a subcommittee was appointed to consider and to modify, if it thought fit, the scheme of the Obstetrical Society. In 1875 a Government return—"Laws and Regulations with Reference to Midwives Abroad"—was obtained and this stimulated matters considerably. In 1877 the Duke of Richmond's Medical Bill contained a clause which purposed to legislate for the registration of midwives in England and Wales but this portion of it was dropped as it was feared it might cause confusion between midwives and medical men. In 1882 a Bill was drafted by the British Medical Association but it was never presented to Parliament. In 1889 the General Medical Council resolved:—

That this Council regards the absence of public provision for the education and supervision of midwives as productive of a large amount of grave suffering and fatal diseases among the poorer classes and urges upon the Government the importance of passing into law some measure for the education and registration of midwives.

The first Midwives Bill (1890) was promoted by the Midwives Institute, but it was withdrawn on the understanding that a select committee should be formed to consider the whole subject. This committee sat on several occasions but reported without hearing any evidence. The result was that a second Midwives Bill was introduced in

July, 1890, and this was reported to a select committee. In April, 1891, the Royal College of Physicians of London appointed a committee to consider this Bill and in the report which was issued the conviction was expressed that legislative action was desirable in order to secure the due education, examination, and registration of midwives and recommended that a Parliamentary subcommittee should be asked for before which the whole subject might be investigated. On June 17th, 1892, a select committee of the House of Commons reported as follows:—

> Your committee have sat six times and have taken most valuable and important evidence from medical men and practitioners in various spheres of practice both in favour of, and opposed to, the registration of midwives. This evidence has shown that there is at present serious and unnecessary loss of life and health and permanent injury to both mothers and child in the treatment of childbirth and that some legislative provision for improvement and regulation is desirable. They also had evidence showing that there is a wide field for training midwives now unused connected with parish infirmaries and home practice in populous places. Their inquiries have been cut short by the approaching early dissolution of Parliament and they therefore report the evidence and recommend a continuation of the inquiry in the next session of Parliament.

In August, 1893, another similar committee reported thus:—

> Your committee have sat four times and have taken most valuable and important evidence, which, with that given last year at six sittings, includes that of distinguished medical men and women in various spheres of practise, both in town and country, and also from trained and experienced midwives from many districts. Your committee are of opinion that a large number of maternal and particularly infant deaths, as well as a serious amount of suffering and permanent injury to women and children, is caused by the inefficiency and want of skill of many of the women practising as midwives, without proper training and qualifications. They find that amongst the poor and working classes both in the country and in towns the services of properly trained midwives have been eminently successful and of great advantage to the community. As proved by the evidence before your committee, the services of midwives are a necessity and consequently every precaution should be taken to discourage the practice of women who are ignorant and unqualified. Your committee are of opinion that by legislative enactment no woman should be allowed to call herself or practise as a midwife except under suitable regulations, but that the term "registered midwife" should be protected and restricted to those who have been properly trained and who alone should be placed on the "Midwives Register," and that the vested interests of untrained midwives should be efficiently protected by inserting in any future Bill a clause to the effect that any woman who produces evidence that she is in practice as a *bond fide* midwife at the time of the passing of the Act shall without formal registration be allowed to continue her calling under the term "midwife" alone but shall not be permitted to assume any other title whatsoever. Your committee therefore recommend that a system of examination and registration of midwives should be established and that for the purpose of admission and examination of women desiring to act as midwives the General (Medical) Council shall be invited to frame rules for regulating: (1) the admission to the Register either by (*a*) practice or (*b*) examination, or by both; (2) the conditions of admission to such examination; and (3) the conditions of such examinations. These rules and regulations shall in the opinion of your committee be subject to confirmation by the Privy Council, and in the event of the General Council failing to make such rules as the Privy Council can confirm your committee recommend that the Privy Council shall invite some other medical body or forthwith cause rules and regulations proposed in the foregoing paragraph to be framed for the purposes required and that such rules shall take effect as if they had been made by the General Council and confirmed by the Privy Council. Your committee also recommend that the duty of carrying out locally the provisions of the Act that will be required should be placed in the hands of the county councils. They are also of opinion that greater facilities for the study of midwifery should be provided in workhouses and lying-in hospitals.
>
> In conclusion your committee desire to refer to the apprehension expressed by certain witnesses belonging to the medical profession, lest their interests might be injuriously affected by an improvement in the status of midwives. The great preponderance, however, of medical and other evidence, having regard to both the authority and number of witnesses, was to a contrary effect. Your committee therefore, whilst giving due consideration to the expression of such fears, believe that the suggested injury is not likely to prove serious and they are of opinion that medical men will not only be relieved of much irksome and ill-paid work, but also that improved knowledge on the part of midwives will induce them to avail themselves more frequently, and at an earlier stage than at present, of skilled medical assistance in time of emergency and danger. On this point your committee had substantial evidence.

Lord Balfour introduced a Bill to the House of Lords in 1895. Then came the Midwives Bill of 1898 which followed the lines suggested by the select committee. By this time there was a consensus of opinion that reform could only be effected by legislation. Objections were raised to the Bill by certain members of the profession who urged that all pregnant women should be attended by medical practitioners and who held that no midwives should be created but be allowed to disappear gradually and that monthly nurses should be better trained and take the place of midwives. Others opposed the Bill as they believed it would lead to increase of abortion and infanticide and would endanger the lives of pregnant women and children and interfere with the training of the medical students to practise midwifery. This Bill, however, was not passed and it was followed by one in 1900 by Mr. Tatton Egerton, and the Midwives Bill 1902, which culminated in the Midwives Act 1902. The object of this Bill is "to secure the better training of midwives and to regulate their practice." It was brought in by Lord Cecil Manners, Mr. Tatton Egerton, Mr. Schwann, Mr. Parker Smith, Sir Savile Crossley, Mr. Eugene Wason, Mr. Tennant, and Mr. Heywood Johnstone. Evidence was given which fully proved that it was useless and impolitic to attempt to do away with midwives. It is not the midwives themselves that are to be blamed—it is the medical profession that should be blamed, and I am always sorry when I hear midwives maligned as "Gamps" and other disrespectful appellations, and although untrained, unskilled, and unconversant in the principles of aseptic and antiseptic measures as the majority of them are, yet I firmly believe that most of them have done their duty to the best of their skill and ability, and that they have rendered valuable aid to women in travail when medical assistance could not be got in time I can bear my personal testimony. It is clearly therefore our duty certainly not to malign them but to thank them for the good work they have done in the past and endeavour in the future to raise their status, for it will be better for them, for us, and certainly to our country at large. The half a million poor women who cannot afford medical aid in their labour, who are annually confined in England and Wales, I venture to speak for them, hail with delight the passing of the Midwives Act. On the other hand, it must be said that the late appearance of such an Act is partly due to the attitude assumed by midwives and to the unreasonableness of their own requests at one time. The medical profession has for years been like a house divided against itself on this question, the one portion making all endeavours to procure efficient instruction and training for midwives, the other taking equally strong measures toward their extinction. After a long time, however, the latter class seeing that the majority of their colleagues and the country at large would not do without midwives gave in, or shall I say were conquered, and it is to be sincerely hoped that all members of the profession will unite hands and efforts in making this Act a success throughout the land, especially in country districts.

THE MIDWIVES ACT, 1902.

This Act was passed on July 31st, 1902, and came into operation on April 1st, 1903. It does not apply to Scotland and Ireland. 1. The chief objects of the Act are: (*a*) to secure the better training of midwives; and (*b*) to regulate their practice.

Although one of the chief objects of the Act is to "secure the better training of midwives," yet neither the Act nor the rules framed by the Central Midwives Board make any provision whatever or even suggestions how this end may be attained and unless county councils and other local supervising authorities, or private benevolence, with or without the assistance of State funds, come to the rescue, I fear that, as was recently stated in THE LANCET by an experienced medical man, that "our midwives, though under control, will still for a long time be the worst trained and the most ignorant in Europe"; or, as Miss J. Wilson (a member of the Central Midwives Board) puts it: "This is not surprising when we remember the training abroad is not only thorough but is given practically free by the State or the community. The supply of candidates therefore in foreign countries presents no difficulty; a small but fixed salary is also guaranteed to the midwife in thinly-populated and remote districts and preference in training in some places is given to pupils who intend to practise among the poor. In England and Wales we must hope that private and public benevolence will take the place of State funds, with the advantage which seems essential to our national satisfaction—which is unknown in foreign countries—of combining voluntary interest with State control and effort. If, however, the work of training is to be adequate to meet the demand the subject should first receive careful preliminary discussion, deliberation, and forethought. Such work to be effectual should be undertaken as a national duty to meet a national need.

There are many schemes already before the public and I will only add mine as a foundation for debate. My views would run somewhat on these lines. I should like to see the formation of a national council for training, the principal

functions of which would be to map out the country with a view to the best organisation for training and the provision for midwives, aided by local knowledge; to collect funds; to found training scholarships under approved conditions of binding midwifery probationers for a special period of work in poor districts; to utilise as far as possible our present hospitals; to give grants to districts to help to support a midwife; and, later, to found itself, or to help to support, a national maternity hospital in which the training should be on the best possible lines, specially for midwives for the poor. Considerable funds would be required and the undertaking should combine the best knowledge and experience available and should include the heads of those urban and rural maternity societies which have already done such invaluable work in training midwives for the service of the poor. In short, I should like to see such a council do for midwives' work in England and Wales what has been done in the United Kingdom for nursing by the Queen Victoria Jubilee Institute. I venture to express a hope that if such a council is formed it will not only train midwives but will arrange that their knowledge is maintained and improved. This is a most important part of the system abroad and it is desirable for the maintenance of a high standard of work."

Personally I am sanguine that the training of midwives will be undertaken by county councils and other public bodies. The late Dr. W. N. Thursfield put the matter in a nutshell when in 1893 he wrote: "Public bodies in various parts of the country are providing facilities for the technical training of women in almost every branch, from cooking to music. Training in obstetric nursing would, in some respects, be a typical form of technical training as it would be affording instruction of a kind otherwise out of the reach of those instructed and the skill acquired might be expected to supply a local need and find local employment. Efficient training in obstetric nursing cannot, however, be carried out locally in places most needing it, as to be efficient it must be at some institution where what would otherwise be the individual experience of a lifetime can be concentrated in the experience of a few weeks. Certainly in some way subsidies, to assist suitable women desirous of such training, ought to be forthcoming and if such provision is outside the province of public bodies here is an opportunity for the munificence of private philanthropy." The Glamorgan county council has given to the Midwives Act considerable attention and has delegated its powers without restrictions to an executive subcommittee, with its medical officer as executive officer. The question of the training of midwives is now under the consideration of the education committee and I have reason to believe that a training centre or centres will be established, either by the county council alone or jointly with other bodies, for giving instruction to young women who desire to become midwives, provided they undertake to obtain the certificate of the Central Midwives Board and to practise for some time within the county, as many young women who may desire to take up this work may not be in a position to defray the expenses incurred. I am endeavouring to persuade my county council to include the training of midwives under the term technical instruction and to offer a few scholarships a year to encourage deserving young women to take up the work. With regard to the work of supervision, it is probable that a female inspector or inspectors will soon be appointed.

Many women, however, during recent years, anxious to become efficient midwives, have been trained at our lying-in institutions and elsewhere and have obtained certificates to the effect that they possess the knowledge necessary to fit them for their responsible work but before the passing of this Act it was permissible for any women with or without a good moral character and without having received any instruction whatever to undertake the conduct of any case together with the after-treatment of mother and infant. With a view of obtaining some guarantee that every woman who habitually and for gain practised as a midwife had received and profited by a regular prescribed course of training the Act was passed, chiefly in the interests of the poor. The kernel of the whole Act is contained in Sections 1 and 2 which may be summarised thus: (*a*) From and after April 1st, 1905, it will be illegal for any woman not being certified under the Act to style herself a midwife; (*b*) from and after April 1st, 1910, it will be illegal for any woman habitually and for gain to attend women in childbirth (otherwise than under the direction of a qualified medical practitioner) unless she is certified under the Act; and (*c*) up to the end of March, 1905, women holding certain certificates mentioned in the Act and approved by the Central Midwives Board may claim to be certified. Again, women who can satisfy the Central Midwives Board that they have been in practice for at least one year prior to July 31st, 1902, and that they bear a good character, may claim to be certified under the Act. Candidates not included in one of these classes will be required to pass the examination of the Central Midwives Board before obtaining a certificate.

2. The chief provisions of the Act are: (*a*) the constitution of a Central Midwives Board having certain powers and prescribed duties to perform; and (*b*) the constitution of local supervising authorities whose powers and duties are definitely stated. Provisions are also made for the punishment of offences under the Act and for appeal from any court of summary jurisdiction to the court of quarter sessions. The Central Midwives Board has been constituted and consists of five medical men, three ladies, and one Member of Parliament (appointed by the Association of County Councils).

3. The duties and powers of this Board are: (*a*) To frame rules—(1) regulating its own proceedings; (2) regulating the issue of certificates and the conditions of admission to the Roll of midwives; (3) regulating the course of training and the conduct of examinations and the remuneration of examiners; (4) regulating the admission to the Roll of women already in practice as midwives at the passing of the Act; (5) regulating, supervising, and restricting within due limits the practice of midwives; (6) deciding the conditions under which midwives may be suspended from practice; and (7) defining the particulars required to be given in any notice under Section 10 of the Act. (*b*) To appoint examiners. (*c*) To decide upon the places where, and the times when, examinations shall be held. (*d*) To publish annually a Roll of midwives who have been duly certified under the Act. (*e*) To decide upon the removal from the Roll of the name of any midwife for disobeying the rules and regulations from time to time laid down under the Act by the Central Midwives Board or for other misconduct, and also to decide upon the restoration to the Roll of the name of any midwife so removed. (*f*) To issue and to cancel certificates. The Central Midwives Board has been formed according to the provisions of the Act, Section 3 (1), (2), (3), and rules under Section 3 (1.) have been framed and approved by the Privy Council for a period of three years.

The councils of a county or county borough throughout England and Wales become the local supervising authorities over midwives within the respective areas and their duties are: (1) to exercise general supervision over all midwives practising within their area; (2) to investigate charges of malpractice, negligence, or misconduct on the part of any midwife and, should a *prima-facie* case be made out, to report to the Central Midwives Board; (3) to suspend any midwife from practice if such suspension appears necessary in order to prevent the spread of infection; (4) to report to the Central Midwives Board the name of any midwife convicted of an offence; (5) to supply the secretary of the Central Midwives Board with the names and addresses of all midwives who during the preceding year have notified their intention to practise and to keep a current copy of the Roll of midwives accessible at all reasonable times to public inspection; (6) to report to the Central Midwives Board the death of, or any change in the name and address of, any midwife; and (7) to give due notice of the effect of the Act to persons at present using the title of midwife.

With regard to the constitution of the Central Midwives Board I have one remark to make, and it is this: Would it not have been expedient to have nominated one person on this Board to represent the Incorporated Society of Medical Officers of Health, which in the past has rendered valuable services to the community in the prevention of disease and which in the future will probably be expected to advise as to the best methods of carrying into effect the various provisions of the Act? This is at least a matter worthy of further consideration. I am pleased that there are on this important Board three ladies whose sacrifices and efforts on behalf of the women of England and Wales are well known and that one person has been appointed to represent the Association of County Councils. According to Section 2 any woman who can satisfy the Board that she has been in *bonâ-fide* practice for one year before 31st July, 1902, can claim to be certified, provided that she bears a good

character, and I fear that the majority[1] of our midwives will obtain their certificates in this way and among them many that are illiterate, unable to read, to write, and to keep the necessary books and records, much less to take the temperature, apply antiseptics, &c., and perform other duties that will be required of them. I feel sure that the Central Midwives Board, having no idea of how the question of the training of midwives would be taken up in the country at large, is experiencing a great difficulty in this connexion, anxious on the one hand not to admit any but competent persons to the Roll of midwives but on the other somewhat afraid that there would not be a sufficient supply of midwives up to 1910. Unquestionably this class of untrained midwife will form a serious problem in the working of the Act. Individually many of them have done useful work but there are a large number whose self-confidence is only equalled by their ignorance. Up to April 1st, 1905, *any* woman may practise as a midwife but after this date *no* woman shall be allowed to call herself a midwife or any name suggesting competence unless she has earned it by training and obtained an acknowledged certificate, but she will be able to practise with impunity up to April 1st, 1910.

Then the final step comes into operation, for from April 1st, 1910, no woman uncertified under the Act shall habitually and for gain attend women in childbirth, excepting as the friendly assistant in emergency. We have therefore the period from now to 1910 (six years), as pointed out by Mrs. Heywood Johnstone, in which "to review the whole situation and prepare for the change, so that, when the 'Gamp' and all her train of death, sorrow, and suffering passes from our midst, the dawn of a better state of things shall culminate in a sufficient supply of trained midwives who have been taught to care for mother and infant and who will be bound to call in the doctor in cases of disease and abnormality before they have drifted beyond the reach of medical skill." The untrained midwives (and excellent women some of them are) will, ere this has elapsed, have rapidly decreased in number or passed away and the younger ones will either get the requisite training or not care to take up a profession so soon to be condemned. Mrs. Heywood Johnstone further observes: "Are we creating a vacuum? Are we to let the law become a dead-letter? Shall the labour of those who have toiled so hard become void, or worse than void, in a *new form* of suffering to the poor women who cannot afford, and yet imperatively need, assistance in their confinements?" The same lady further says: "I am sure it will not be so." Indeed, I am not at all sure that it will not be so unless the matter is strongly and prominently brought before county councils and other authorities by medical officers of health and others having at heart the interests of our poor women. Doubtless in the case of the 26 county councils and a large number of county borough councils this will be the case but what about the remaining county councils which have not appointed medical officers of health to advise them in these and similar matters? and, above all, what about the small district councils? The horizon is very dark and at present I cannot detect a silver lining to it. I am aware that great activity has been aroused in some quarters regarding the important questions of the training of midwives and that the number of trained midwives are increasing rapidly, not to speak of district nursing associations that are multiplying throughout the country where poor women can obtain the combined assistance of nurse and medical man.

I agree with the suggestion of the Central Midwives Board that a few women conversant with the need of the poor of districts in question should be on every local supervising authority and it is with their aid that we can hope to accomplish what we have in view, for it is within their power to render substantial public service by preparing themselves for the work and combining experience, tact, and sympathy with a sense of public duty. Much remains to be done. "Organisation is necessary that we may bring together the women that wish to be trained, the institutions competent to train them, and the many parishes crying out for help that do not know how to manage and organise and in some instances sorely need pecuniary assistance. A thorough enquiry should be made in each county that we may know what foundations we have to work upon, and this should be followed by suggestions and consultations as to the best means to give practical help in all these details and for this I cannot emphasise too strongly how important it is to obtain assistance of those experienced both in the training and the supply of midwives and in the needs of the poor, especially the rural poor." I have made such inquiries in the administrative county of Glamorgan with the following results:—

Number of midwives	about 700.
„ „ trained midwives	„ 70.
Percentage of confinements attended by midwives in colliery districts... ...	80 per cent. in mining districts.
Deaths in childbirth	53 in 1902.
Institutions where midwives may be trained	None except Cardiff union infirmary.
Infant mortality rate	Very high, average for 1892-1902 = 188 per 1000 births.
Early marriages	This is the rule in the mining districts.

I now come to the question of the constitution of local supervising authorities and the duties they are expected to perform. According to Section 8 county and county borough councils are the local supervising authorities, but according to Section 9 they may delegate their powers (with or without restrictions or conditions) to: 1. A committee appointed by them and consisting either wholly or partly of members of the council (and the provisions of subsections 1 and 2 of Section 82 of the Local Government Act, 1888, shall apply to every committee appointed under this section and to every council appointing the same and women shall be eligible to serve on any such committees). 2. District councils. I am in full agreement with the following "suggestions to county and county borough councils" recently issued by the Central Midwives Board, viz:—

1. The Central Midwives' Board suggests to the county councils the advisability of *retaining* the administrative duties assigned to them under the Midwives Act, 1902, as far as possible in the hands of a committee directly appointed by themselves. This will not only secure for the county council more adequate control over the expenditure but will tend also to prevent the possibility of local rivalries and jealousies interfering with the carrying out of the provisions of the Act.

2. The Board suggests further that the health committee of the county council would form a suitable committee to act as the local supervising authority with power to add to its number from outside the council or otherwise. In counties where no county medical officers of health have been appointed it is suggested that a special medical officer be appointed to advise the committee.

3. It is further suggested that supervision should be regarded as in least in part a medical duty and that the medical officer of health, or the medical adviser specially appointed, should be empowered to act as the executive officer of the committee.

4. The Board suggests to county and county borough councils that this being a matter almost solely affecting women the local supervising authority should, as sanctioned by the Act, include in any committee it may appoint one or more women conversant with the needs of the poor of the district.

I agree that, where the county council has already appointed a medical officer of health, this officer should be the person to advise the county council in this matter, for the supervision required is rightly regarded as, at least in part, a medical duty. I further agree that this committee should be constituted as suggested. With regard to counties where there are no county medical officers it is suggested that a special medical adviser be appointed to advise the committee. Such a suggestion is very vague and it must have been most difficult for the Board to have made any suggestion at all. Who is the medical adviser to be and what must be his qualifications? Is he to be one of the medical officers of health within the county? We are not told but I am of opinion that great difficulties will be experienced in persuading county councils to appoint such an officer and I am also of opinion that it would be undesirable and impolitic to appoint a medical officer of health who is also in practice, for such an arrangement would be likely to lead to difficulties arising through friction with his colleagues. Where there are whole-time medical officers of health in a county it appears to me that such a person or persons should be appointed medical adviser or advisers. A county council is not bound to appoint a medical adviser and if it does not the carrying out of the Act must be left to the district councils of the area.

I am strongly of opinion that none of the administrative powers conferred on county councils by this Act should be delegated to district councils for the following amongst other reasons. 1. If the county councils delegated their powers without restrictions or conditions to district councils and the result proved unsatisfactory it would be difficult, if not impossible, to recall them. 2. If these powers and

[1] At the end of January, 1904, the total number enrolled by the Central Midwives Board was 1600; of these 1079 were *bond-fide*.

duties are delegated the medical officers of health would probably be the executive officers to these district councils, and it appears very undesirable that he or they (if also in general practice) should in his own district and amongst his own patients be the censor of the conduct and capabilities of the midwives within the area. For a similar reason it seems undesirable that district councils should be called upon to investigate charges of malpractice, negligence, or misconduct, or to suspend any midwife from practice. Many shades of opinion would be imported into every inquiry and it would be difficult to exclude the influence of personal feeling and bias. 3. It is most desirable that the Act should be administered with the greatest uniformity possible, but if the powers and duties are delegated to district councils this end would not be secured. 4. Further, it must be borne in mind that any expenses incurred by a district council in the execution of any powers or duties delegated to them under the Act, shall, to any amount not exceeding such sum as may be prescribed by the county council, be repaid to such district council as a debt by the county council, and until the Act has been in operation for some time it will be impossible for the county council to estimate with any accuracy the expenses incurred in a given district.

The midwife is permitted to attend normal labours only and in every emergency she is compelled to send for a qualified medical practitioner, and as everything will depend on her ability to recognise in time any danger and abnormality in either mother or child it is very important for her training to be thoroughly efficient. It is the duty of the Central Board to regulate the course of training and the conduct of examinations. As Dr. W. J. Sinclair has remarked: "A midwife must no longer trifle with a woman's life or health because she hopes that some vaguely comprehended abnormality may right itself without help or because she fears to expose her ignorance to the medical practitioner and to the family of her client. She will find it injurious to her interests to temporise with puerperal sepsis until the patient is moribund, or at least beyond the reach of therapeutic measures; she will not dare to conceal the worst injuries of parturition until remote operations are rendered necessary; she will no longer treat ophthalmia of the new born until the infant must inevitably become blind or give frivolous advice with regard to skin affections which signify a fatal or a curable malady according to the time and method of treatment."

The Central Midwives Board has power to cancel as well as to issue certificates. "No woman certified under this Act shall employ an uncertified woman as her substitute." This is a much needed reform and it entirely forbids the practice of employing substitutes in any shape or form, and will put an end to the abuse of employing ignorant women to do the nursing after the labour is over.

The midwife of the future will not be authorised to grant any medical certificate or any certificate respecting the stillborn. The question of the registration of stillbirths has long been ripe for discussion. The Registration of Births and Deaths Act, 1874, permitted burials of stillborn children to be carried out on the declaration of a midwife or any other person present at the birth. This has undoubtedly led to much social scandal and a fruitful source of undetected crime. The number of stillbirths is at present unknown, but in future the midwife's record must show the number of these cases, and in this way the number occurring in a certain area can be ascertained. Stillborn children are too easily disposed of and many evils and irregular practices are hidden which ought to be investigated. The deaths, stillbirths, and cases of puerperal fever and other infectious disease must be notified to the local supervising authority. No midwife shall undertake the duty of laying out the dead or follow any occupation that is in its nature liable to be a source of infection. The local supervising authority should therefore be thoroughly conversant with the homes of all their midwives and the work which they undertake between cases.

The duty of reporting to the local medical officer of health any notifiable disease rests with the medical attendant as heretofore. It is most desirable also that the medical attendant should be compelled to make a similar notification, on the payment of a reasonable fee, *at once* to the medical adviser of the local supervising authority, because this is the only means whereby the executive officer can obtain the information promptly, and unless it is obtained promptly it is of but little use. In the county of Glamorgan, through the courtesy of the local medical officers of health, I receive weekly notifications, but they are not compelled by law to supply this information. The records of the midwife will show the number of fever cases which have occurred in her practice and the name of the medical man who assisted her; they will show the past record of parturient women should such information be required on some future occasion and the midwife must send a copy of this record to the executive officer. After attendance upon a patient suffering from puerperal fever or other infectious illness the midwife must disinfect herself and her appliances, and have her clothing thoroughly disinfected before going to another case. The local supervising authority may suspend a midwife if such suspension appears necessary to prevent the spread of disease. I consider it desirable that the medical adviser should be empowered by the committee to act promptly and at his discretion in a matter where immediate action is imperative. In Sweden a midwife must abstain from practice for a week after attending puerperal fever and live as much as possible in the open air. I consider that the question of the disinfection of midwives, their clothes, and their appliances is of the utmost importance and that no one should be certified unless they have a thorough practical knowledge of what disinfection means. I hope very shortly to see every sanitary district or groups of districts in Glamorgan supplied with isolation hospitals and in connexion with each such hospital the sanitary committee has insisted on having (1) an efficient disinfecting apparatus and (2) a discharging block, where without coming near any of the nursing staff or patient in the hospital it can be arranged that a midwife can have a disinfecting bath. I can distinctly trace several cases of puerperal fever to the neglect of disinfecting soiled beds and bedding by local authorities, and I am speaking definitely when I say that disinfection is at the present undertaken in a very half-hearted and deficient manner by some sanitary authorities.

A candidate for the certificate of the Central Midwives Board must have reached a sufficient standard of general education to enable her to keep the books and to prepare the records required of her. She must be not under 21 and not over 35 years of age, must have undergone a certain training, and produce a certificate of good moral character. As to training required she must have, under satisfactory supervision, attended and watched the progress of not fewer than 20 labours, making abdominal and vaginal examination during the course of labour and personally delivering the patient. She must have nursed 20 lying-in women during the ten days following labour. She must have attended a sufficient course of instruction and pass an examination, partly written and partly oral, in: 1. The elementary anatomy of the female pelvis and generative organs. 2. Pregnancy and its principal complications, including abortion. 3. The symptoms, mechanism, course, and management of natural labour. 4. The signs that a labour is abnormal. 5. Hæmorrhage, its varieties and treatment of each. 6. Antiseptics in midwifery and the way to prepare and to use them. 7. The management of the puerperal patient, including the use of the clinical thermometer and the catheter. 8. The management (including the feeding) of infants and the signs of the important diseases which they may develop during the first ten days. 9. The duties of the midwife as described in the regulations. 10. Obstetric emergencies and how the midwife should deal with them until the arrival of the medical man. This will include some knowledge of the drugs commonly needed in such cases and the mode of their administration. 11. Puerperal fever, its nature, causes, and symptoms; the elements of house sanitation; the disinfection of person, clothing, and appliances. She must also show acquaintance with the ordinary subjects of elementary education.

With regard to the use of drugs there exists a great difference of opinion but the rules state that she "must enter in a book all the occasions on which she is under the necessity of administering any drug, whether scheduled as a poison or not, the dose, and the time, and cause of its administration." I am very doubtful whether such drugs as opium, morphine, and others should be placed at the discretion of thousands of unqualified persons who are only certified for attendance on normal cases of labour, involving the safety of the public. To possess some knowledge of house sanitation is very necessary, for midwives conversant with the elements of hygiene and the meaning of antiseptic and aseptic precautions will be able

to render help to their patients in putting in order their houses, especially the lying-in room. They will be able to teach the value of personal cleanliness and doubtless their work in promoting reform in these directions will have a wide and wholesome influence. "Interest has been recently manifested by the activity of many Members of Parliament by the introduction of projects for remedial legislation and by the work of many associations, and I think it is not too much to hope that indirectly the silent work of educated midwives will prove a wholesome stimulus to the higher classes of society and arouse their sympathy in the great work of improving the dwelling-houses of the labouring classes of our country."

The practical work—i.e., attendance on labour, &c.—must be done under the supervision of a registered medical practitioner or by the chief midwife of institutions recognised by the Board. The certificate to the effect that the applicant has been in *bonâ-fide* practice for at least 12 months prior to July 31st, 1902, and that she is trustworthy, sober, and of good moral character, must be signed by a justice of the peace, minister of religion, registered medical practitioner, or other person acceptable to the Board. I venture to suggest that such a certificate should be signed by two persons, one of whom *must* be a registered medical practitioner.

In the directions to midwives it will be seen: 1. No midwife shall undertake the duty of laying out the dead or follow any occupation that is in its nature liable to be a source of infection. I take it that the last sentence includes the nursing of persons suffering from erysipelas, septicæmia, infectious disease, &c. The duty of enforcing such a clause devolves on the local supervising authorities and there will be a great scope for doing efficient work in this direction. 2. Every midwife must enter in a book particulars of all drugs she uses. 3. She must send for the medical man at once in all cases of abortion, illness of patient or child, or any abnormality occurring during pregnancy, labour, or lying-in. The possession of important technical knowledge is included in the ability to detect these conditions, and hence the value of the required training. 4. Every midwife sending for a registered medical practitioner must state in writing the conditions of the patient and the reason of the necessity for advice. 5. When the death of mother or child or a stillbirth occurs where a registered medical practitioner is not in attendance the midwife shall as soon as possible after the occurrence report to the local supervising authority. It would be wise to insist before admitting any woman to the roll of certified midwives that she has been properly vaccinated.

The records that midwives must keep include: (1) a register of cases; (2) the occasions of sending for medical help; and (3) a case-book with further detail. A copy of (2) must be sent to the local supervising authority within 12 hours. Such records will be most useful for further reference and may be the means of enabling the midwife or the medical attendant to prevent at some future confinement some of the "accidents of childbirth" in the parturient which frequently end fatally.

Regarding the duties of the local sanitary authority the rules read thus: "Whenever a midwife has been in attendance upon a patient suffering from puerperal fever or from any other illness supposed to be infectious she must disinfect herself and all her instruments and other appliances to the satisfaction of the local sanitary authority and must have her clothing thoroughly disinfected before going to another labour. Unless otherwise directed by the local supervising authority, all washable clothing should be boiled and other clothing should be sent to be stoved (by the local sanitary authority) and then exposed to the open air for several days." The difficulty of disinfection will be a serious one in many rural districts in agricultural counties where means for disinfection and isolation have yet to be provided.

The duties of the supervising authorities begin when the midwife has been certified. The whole tenor of the Act is against anything like inquisition and it appears to me that the work of supervision could be best undertaken in part by female inspectors. The duties included under Section 8 (2)—i.e., the investigation of charges of malpractice and suspending any midwife—would be the special work of the committee appointed to carry into effect the provisions of the Act. The duties included under Section 8 (3), (4), (5), (6), and (7) should be intrusted to the executive officer.

ON DIABETIC NEURITIS.

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(*Concluded from p. 19.*)

BESIDES motor and sensory filaments nerves contain filaments belonging to the vaso-motor system and these may become involved in the morbid state appertaining to neuritis. In this way an effect may be produced upon the vascular system leading to the contractility of the vessels being thrown out of proper working order. Hence the occurrence of local flushings and pallor of an abnormal nature. As a result the hands or feet may become at times hot and florid from dilated vessels or blanched and cold from contraction taking the place of dilatation. Naturally the vessels adjust themselves to the altered positions assumed by a part so that an equable state is maintained whether the limb is held up or hung down, but under a loss of proper vaso-motor nerve power the vessels in the one case may become unduly emptied and in the other unduly distended. Local areas of sweating, referable assumedly to an altered vascular state, are, it may further be mentioned, sometimes noticeable.

Nutritional disordered action is well known to arise from nerve lesions. Many illustrations might be given of different kinds of nutritional error attributable to a wrong condition of nerve. An altered vascular state, as I have just pointed out, emanates from nerve lesion through the influence exerted on the functional capacity of the vessels. Following upon this nutritive operations are liable to be influenced secondarily. Besides altered nutrition dependent upon an altered state of the blood-vessels nutritive aberration may arise from the direct effect of loss of the influence of nerve power on the nutritive changes occurring in the tissues.

Gangrene of the toes supplies an illustration of a trophic trouble frequently occurring in connexion with diabetes and in most instances, if not in all, in association with peripheral neuritis. Certainly when neuritis of the lower extremities exists the feet of the diabetic are placed in an exceptionally vulnerable position. A very trivial injury may suffice to lead to the establishment of serious mischief involving often a more or less extensive loss of living parts and, it may be, even the loss of life. A notable feature of the condition is the pain with agonising exacerbations that is ordinarily experienced in the affected part. The pain is out of proportion to what would be looked for simply from the destructive process proceeding but in conformity, it may be said, with the co-existence of peripheral neuritis. There are points of alliance between the condition to which I am alluding and Raynaud's disease and in connexion with the latter authorities believe that neuritis constitutes a factor.

Another trophic lesion is the perforating sore which from time to time is met with as an accompaniment of diabetes. A spot of surface mischief becomes perceptible and remains without exhibiting any sign of healing action. An incrustation may form under which ulceration may proceed and by-and-by a burrowing sinus may be discovered leading, it may be, into the joint of a toe or to denuded bone. Sometimes this condition is attended with such little surface appearance as to lead to surprise being experienced when the extent to which deep-seated mischief has advanced is discovered. Sometimes the mischief may remain restricted to the surface. The part simply fails to possess the requisite healing power to become reinstated and the sore persists in an indolent state. There is usually a prolonged history of peripheral neuritis. For the sake of illustration I may allude to the following cases. A diabetic patient, aged 50 years, who had been for some time the subject of peripheral neuritis of the lower extremities, presented himself with an old-standing indolent sore on the inner side of each great toe opposite the terminal phalanx. A female, aged 63 years, who had suffered from diabetes for ten years and had become affected with peripheral neuritis came to me with her urine loaded with sugar. The quantity of urine passed was very excessive and the actual amount of sugar 71 per 1000. This state of things was not to be wondered at as she had recently been taking Manhu bread and Mellin's food. Upon her legs were some purpuric-looking spots and in addition some indolent erosions in connexion with which she suffered intense scalding and stinging pain.

I have been referring to trophic conditions arising from

diabetic neuritis but trophic lesions occur also in connexion with diabetes as a primary result of the effect of the sugar abnormally passing through the system. By virtue of the abnormal presence of sugar in the system the nutritive operations are interfered with and various trophic disordered states produced. Amongst these mention may be made of cataract, loosening of the teeth, certain dermatoses including xanthoma diabeticorum, boils, and carbuncles. Indeed, diabetic neuritis is itself a primary trophic lesion due to the effects of the sugar in the system, from which also the textures generally of the body to a greater or less degree suffer.

Diabetic neuritis is a very variable affection with respect to location. Most commonly, as with other forms of neuritis arising from a toxic agency, its development exhibits a symmetrical character. The lower limbs are observed to suffer far more frequently than the upper. The upper and lower may be more or less affected together and somewhat exceptionally the upper may be attacked without any symptoms being experienced in the lower. I have a record before me of a case in which the right leg, the right side of the body, and the right arm as low as the elbow were the seat of neuritic pains without anything wrong on the left side being complained of. The patient, aged 66 years, had been the subject of diabetes for five years and the urine at the time to which I am alluding contained 38 per 1000 of sugar. Sometimes the neuritis is localised to a particular nerve. Sciatica often occurs in connexion with diabetes. It is true, it may perchance happen that the sciatica met with in the diabetic may be consecutive as in other cases to cold or some other incidental exciting cause, but at the same time the sugar in the system may contribute to the production of an increased susceptibility to the influence of the exciting cause and thus render the person more than ordinarily liable to the occurrence of the affection. The brachial nerve may similarly suffer and in each case, if the lesion be severe and lasting, more or less wasting of the muscles involved may be noticed to occur.

Looking at the circumstances existing it is not surprising that we should have a protean class of symptoms to deal with in diabetic neuritis. I have seen cases where the main seat of trouble has been in the abdominal region. For example, a patient, aged 67 years, who had been the subject of diabetes for 11 years complained of the frequent occurrence of lancinating or "lightning" pains on the right side of the waist. In addition there existed a tingling sensation in the skin accompanied with hyperæsthesia. I may also cite the case of a patient, a female, aged 58 years, who had been diabetic for five years. The symptoms here were very marked and the urine contained when the patient was first seen by me 41 per 1000 of sugar. The pain was mainly on the left side of the waist. Besides more or less continuous pain frequent sharp flashing pains occurred which were sometimes so severe as to cause the patient to start up and in a moment they were gone. The flesh felt sore and often with a sensation as though the ribs were piercing into it. The skin was acutely tender, so much so that the patient could not bear the crease or the gather of an undergarment against it and was in the habit of placing a silk handkerchief evenly folded over it, whilst the corset required to be worn very loose and sometimes to be removed during the day for obtaining relief from the distress experienced. A smarting burning sensation was another symptom that was frequently experienced, especially when the skin was exposed to the air as in undressing. If suddenly startled by anything a painful sensation immediately darted through the affected part. The legs participated to a minor degree in the neuritic trouble, there being a certain amount of ataxic gait and of sensory disturbance. In the treatment of the case great help was afforded by the continuous galvanic current.

Some few cases have fallen under my notice where anginal symptoms have existed in connexion with diabetes and I have been led to consider that they have arisen from neuritis having attacked the pneumogastric nerves. I thought very seriously of the condition when it first presented itself to my notice but experience has since impressed me with a different view. I have known the cardiac distress to be such as to cause the patient to pull up suddenly in walking and to feel that danger of impending death existed. In one case temporary vomiting at times accompanied the cardiac pain that came on when walking, a circumstance which brought to my mind the joint anatomical connexion of the pneumogastrics with the stomach and the heart. I have found that the condition has sooner or later yielded to diabetic treatment and notwithstanding the threatening aspect that the case may have presented I have not known any bad result to occur. I may further mention that I have seen a few cases of the third nerve being the seat of neuritis with the attendant symptoms of dropped lid and external squint. There being other causes producing this affection it must not hastily be concluded because it happens to occur in a diabetic that it is therefore due to diabetes. It is known, however, to arise from the effect of toxic agencies and this affords *a priori* ground for assuming that it may occur as a result of diabetes. Should evidence be presented of the existence of neuritis elsewhere support may be considered to be given to the local affection under consideration constituting a result of the diabetes, and thence being less serious than might otherwise perhaps be apprehended.

I have spoken of the varied manifestations of disordered action that may present themselves as a result of peripheral neuritis accompanying diabetes and I will now refer to the pathological source of the nerve lesion. Peripheral neuritis, as is well known, is associated with a variety of conditions in which a toxic agent stands as the operative factor. The toxic agent may reach the system from without as with alcohol, lead, arsenic, &c., or be developed within as with the toxins produced in connexion with diphtheria, variola, septicæmia, and some other diseases. Diabetic neuritis is set down in works dealing with the subject to the effect of a toxic agent. I do not question the correctness of this view, but, owing to conclusions based upon misleading evidence, a wrong idea, I consider, has been broached regarding the nature of the agent. In Ross and Bury's work on Peripheral Neuritis at p. 374, where diabetic neuritis is under consideration, there appears the following statement: "All writers on the subject agree that the neuritis does not bear any relation to the amount of sugar in the urine. In many of the cases recorded the amount of sugar has been small: in a case reported by Burns not quite 1 per cent., and in another case between 1 and 2 per cent. Further, the symptoms continue if by strict diet the sugar can be made to disappear from the urine. The above facts seem to indicate that the neuritis is not due to the presence of an excess of sugar in the blood." Such is the groundwork upon which the view has found currency and in a stereotyped way appears in books that the sugar in the system is not the cause of diabetic neuritis. It is further asserted that the neuritis is not attributable to the acetone series of products that often accompany the sugar and to get over the difficulty presented some unknown toxic principle developed in connexion with the diabetes has been brought in and regarded as the morbific agent.

My experience is diametrically opposed to the allegation that has been made acquitting the sugar; and in saying this I am fortified by the ample means for forming a judgment afforded by the frequency with which neuritis occurs in connexion with diabetes. The frequency, it is true, is not equally distributed throughout the field of observation. In the classical form of the disease occurring in young subjects and running a comparatively rapid course, whether from the nerves being less vulnerable to attack or whether from the more limited duration of the condition, neuritis, certainly of a definite nature, may be spoken of as being but rarely seen. In the chronic type of case, however, at middle and advanced age, where the sugar is not kept properly under control it is seldom that the patient goes on for any great length of time without becoming affected with symptoms in some form or other of neuritis. That the products belonging to the acetone series stand outside the question is shown by the occurrence of the neuritis without the products being present. Indeed, it is especially in connexion with the lighter or "alimentary" form of diabetes, the form that is unattended with the presence of the acetone series, that neuritis is particularly found to occur. The converse condition also is often noticed and may be taken for what it is worth. The "composite" class of case, the one in which the acetone group of products is present, is the one in which neuritis is the less likely to be met with. With respect to sugar, this is invariably present in connexion with the supervention of diabetic neuritis. I do not know of such a thing as the supervention of diabetic neuritis in cases where the sugar has been successfully kept under control by dietetic management, although the case may have run on for years. Touching the statement made in the passage quoted regarding the existence of neuritis with the absence of sugar there is a point that requires to be borne in mind.

In the "alimentary" type of the disease the sugar is susceptible of being very speedily and markedly influenced by food. The cases upon which reliance has been placed for assuming that sugar is not an essential factor in connexion with the production of neuritis may be taken, I consider, from my experience, to be cases in which the recorded state of the urine failed to represent the state existing at the time the production of the nerve lesion occurred. The nerve lesion having become established it cannot undergo a sudden subsidence but the condition of the urine may be rapidly altered and therefore when the analytical examination is made it may simply through the instrumentality of food contain only a little or even no sugar, whilst previously there may have been a large amount. In the presence of these circumstances it is easy for an erroneous conclusion to be arrived at unless the observer should be specially on his guard against it.

Whilst writing these remarks a case in point has happened to fall under my notice. The patient, a man, 63 years of age, had been the subject of diabetes for nine years. The onset of the disease was somewhat sharp and severe but by treatment the symptoms became subdued and the patient afterwards continued in a fairly satisfactory state till about a year ago when he began to grow thinner and subsequently noticed, according to his statement to me, that he was at one period passing about a gallon of urine a day. He afterwards became the subject of distressing pains and sought medical advice. Dieting was resorted to and opium was administered. The diabetic symptoms subsided but the pains continued and at this stage I saw the patient through an appointment made by his medical attendant. I found that pronounced and very characteristic symptoms of peripheral neuritis existed. Night and morning specimens of urine were brought for examination and on these being tested the night specimen gave only a traceable indication of the presence of sugar and the morning specimen none. This is by no means the only instance I could relate where diabetic neuritis has existed and adequate sugar has failed to be found in the urine at the time of consultation to account for it. From what has preceded it is easy to understand that the event is not an unlikely one to happen.

As regards the continuance of symptoms after the sugar has been made to disappear from the urine by the restricted diet—a point advanced against the proposition ascribing the neuritis to the sugar—there is really nothing observable but what might be naturally looked for under the view that the sugar is the causative medium and therefore no necessity to bring into the question the effect of an unknown agent. As I have already stated, neuritis does not occur in cases where the sugar is kept under by treatment. In cases in which it does occur it goes hand in hand with the sugar but a certain time is necessarily needed when the nerve lesion has become established for it to subside after the disappearance of sugar has been effected. The more fixed or deeply rooted the condition the longer it may reasonably be expected will be the time required. For relief the getting down of the sugar constitutes an essential matter and when the latter is attained the former may be predicted more or less speedily to follow. Recovery having taken place the maintenance of a satisfactory state may be looked for as long as things are kept right as regards the sugar but if the sugar should be allowed to return a relapse is not unlikely to occur. A close parallelism exists betwen alcoholic and diabetic neuritis, and in the latter sugar, I consider, may be looked upon as holding the position held by alcohol in connexion with the former.

Diabetic neuritis is satisfactorily amenable to treatment if the requisite measures are fully carried out. The first and chief point to be attended to is by appropriate dieting to remove or reduce the sugar which is at the foundation of the abnormal nerve state. Without the accomplishment of this it is futile to expect that hopes can be entertained of any fruitful result occurring. Where, however, the desired object has been attained it is sometimes surprising to see the rapidity with which improvement sets in. Much, of course, depends upon the extent to which mischief has advanced and the length of time it has existed. Frequently I have noticed a few days suffice for comparative ease to take the place of a pre-existing state of painful distress. Usually in a week or two it may be reckoned that relief from actual bodily suffering will be obtained, but it may take time for the minor symptoms of the neuritis to disappear. Exceptionally it may be found that obstinate resistance of some duration is met with and great distress may meanwhile be experienced. Conjoined with the dietetic and codeina or opium treatment for the diabetes I have been in the habit of administering with a beneficial effect five grains of the iodide of potassium and ten grains of bromide of ammonium in a suitable vehicle three times daily. In the few cases that have failed to yield to these measures I have had recourse with a satisfactory result to the galvanic continuous current. Where great superficial pain has existed I have seen benefit conferred by the cautious application of the linimentum aconiti.

PATHOLOGICAL SUGGESTIONS:

(1) THE PREPARATION OF MICROSCOPIC SLIDES FOR BLOOD-FILMS; (2) THE POSSIBLE APPLICATION OF FORMALIN GELATIN AS AN ANTISEPTIC AND DISINFECTANT PROTECTIVE SKIN; AND (3) A TRYPANOSOME-LIKE ORGANISM FOUND IN ASSOCIATION WITH SOME CHRONIC PATHOLOGICAL AFFECTION OF THE MOUTH.

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(From the Pathological Laboratory, St. Mary's Hospital.)

1. *On a simple method of preparing microscopic slides for blood-films.*—The frequent disappointment, inconvenience, and loss of time entailed upon the microscopic workers by improperly prepared blood-films will perhaps justify the publication of a brief note upon a very simple method of getting over the difficulty which arises when the blood which has been spread out upon the slide runs together in such a manner as to leave a system of islands of piled-up corpuscles ringed round with spaces of uncovered glass. Such running together of the corpuscles, which is currently and superstitiously imputed to the grease on the slide, is simply referable to the smoothness of the surface. It can, as I have elsewhere taken the occasion to point out, be remedied by etching into the surface of the glass with a strong caustic alkali or other corrosive chemical.

This method of getting over the difficulty involves, however, access to chemicals, the use of a laboratory, and, above all, troublesome forethought. All this is unnecessary. I now find that the finely roughened surface which is required for the preparation of ideally perfect blood-films can be very simply and unlaboriously obtained by rubbing the surface of the slide with emery paper. I have employed the finest variety of emery paper and have, in order to obtain the necessary mechanical pressure, mounted the emery paper by means of a rubber ring upon a stout cylindrical ruler. In making a film a drop of blood is placed upon a slide thus prepared, another slide is brought down upon it, and as soon as the blood has spread out in the included angle the upper slide is gently drawn along the surface of the lower. The upper slide is held at an acute angle with the lower where a very thin film is to be obtained, at a larger angle where a thicker film is desired.

In view of the circumstance that the disc-shaped and smaller spherical elements—red corpuscles and lymphocytes respectively—slip easily under the slide when the larger spherical elements—mononuclear and polynuclear white corpuscles—are carried onwards and outwards to the edges and end of the preparation, films made as described are ill-adapted—unless where certain precautions are observed—for the purposes of a differential count of white corpuscles. Where such differential count is desired a line should be ruled with a needle longitudinally from end to end through the equatorial region of the film, and the count should proceed from one end of the equator to the other.

2. *On the possible application of formalin gelatin as an antiseptic and disinfectant protective skin.*—The fact that solutions of gelatin set into a firm, insoluble, and elastic jelly on the addition of formalin is, if I mistake not, capable of being turned to manifold practical account. Taking a 15 to 20 per cent. gelatin, liquefying it by the application of heat, making to it an addition of from 1 to 2 per cent. formalin and employing it immediately after mixture we obtain a preparation which, when painted over a moist surface, will adhere firmly to it forming a

tenacious, elastic, and insoluble skin. Such a skin is, I think, admirably adapted to the arrest of hæmorrhagic oozing. I have employed it for this purpose with very satisfactory results, painting it upon the gums in a case of hæmophilia where bleeding had persisted for weeks in spite of the local application of adrenalin chloride and ferric chloride.

The formalin gelatin finds, however, its most generally useful application when it furnishes a protective antiseptic skin to denuded surfaces. It furnishes here an antiseptic and insoluble coating which protects the underlying tissues and is not removed by ordinary washing.

Again, inasmuch as pyogenic micro-organisms (staphylococci) have in the experiments I have carried out been rapidly devitalised when imprisoned under a skin of formalin gelatin, it would seem possible that this material may render services to the operating surgeon. Painted upon the skin it might conceivably furnish the aseptic surface which is required. Conceivably the surgeon might carry his incisions through such a film. Again formalin gelatin might prove useful in sealing up operation wounds, especially operation wounds of mucous surfaces.

Where employing the formalin gelatin upon a denuded surface, pain is avoided by applying first a film of simple gelatin and coating this over when dry with the formalin gelatin. When proceeding thus a tube of sterilised gelatin is melted in hot water and applied to the wound with a brush. This done a volume of formalin equivalent to a twentieth of the bulk is added to the remaining liquid gelatin. The 2 per cent. formalin gelatin thus formed must be applied before it has time to set.

3. *On a trypanosoma-like organism found in association with some chronic pathological affections of the mouth.*—The attention of many pathological observers being for the moment focussed upon the study of the life-history and pathological significance of trypanosomata and allied forms it is perhaps opportune to point out that suitable material for the investigation of these problems may perhaps lie ready to hand. I have in view pyorrhœa alveolaris and other chronic affections of the mouth and the micro-organisms which have been described by French bacteriologists, and in particular by Vincent, under the names of bacillus fusiformis (or hastilis) and spirillum buccæ. The micro-organism denoted by the name of bacillus fusiformis is, I think, clearly not of bacillary nature. Judging from its size (ranging sometimes up to 20 μ), its staining reactions with Leishman's stain (blue staining of the protoplasm and development of three or four chromatin bodies stained red in a characteristic manner), and from the fact that it moves actively through a hanging-drop preparation with an eel-like undulatory movement, the micro-organism would, in spite of the apparent absence of undulatory membrane and flagellum, appear to have affinities with a trypanosome. The resemblance to a trypanosome is heightened when the organism is seen ploughing its way through the corpuscles of a drop of added blood. The micro-organism denoted by the name of the spirillum buccæ is practically always found in association with the above. I have, however, failed to find it in one of three cases of chronic mouth affections in which the so-called bacillus fusiformis has been present in large numbers. The spirillum buccæ as seen under the microscope in a moist film executes incessant whip-like movements which bring up vividly to mind the lashings of the flagellate body in malarial blood. The spirilla here in question do not take the stain deeply when treated with watery solutions of basic aniline dyes.

It may be stated that neither of the above-mentioned forms of micro-organisms has as yet been artificially cultivated.

It has been suggested with regard to them that they may be modifications of, or different stages of, one and the same type of micro-organism. This suggestion falls in with the fact that in one of the cases of pyorrhœa alveolaris which I have had under examination there were to be seen many forms transitional between the thicker and shorter form denoted the bacillus fusiformis and the thinner and longer form denoted the spirillum buccæ. It is hardly necessary to point out that the suggestion of a common origin for the two forms acquires particular interest in connexion with the suggestion of Schaudinn that there may be a trypanosoma stage in the life-history of many pathogenic spirilla.

Two further points may be briefly alluded to. (*a*) The first applies to a case where the pathological affection of the mouth takes the form of a chronic herpetiform eruption on the lips and the development of plaques upon the inner surface of the cheek in the neighbourhood of the angle of the mouth and elsewhere. Here felted masses of the so-called bacillus fusiformis are found in preparations made by puncturing the plaques. This is of interest in connexion with the fact that the development of plaques is a characteristic feature in dourine, a form of trypanosoma invasion which affects in particular the genital system of the horse. (*b*) A condition of extreme anæmia which suggests a possible blood infection is often associated with pyorrhœa alveolaris. In the two cases I have had under observation I have in each case examined the blood films for parasites with negative results.

In conclusion, I desire to express my thanks and obligation to Captain S. R. Douglas, I.M.S., for valuable help and suggestion in connexion with the investigation of these cases.

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THE TREATMENT OF CONGENITAL EQUINO-VARUS DURING EARLY INFANCY.

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THE question of the treatment of congenital equino-varus during early infancy is not only of supreme importance to the patient but also of great interest to the surgeon because of the difficulty in obtaining consistently good results and of the divergence of opinion as to the methods to be adopted. Indeed, few surgical subjects of such antiquity possess so many different principles and multifarious practices at the present day; neither can it be claimed that the literature upon the subject is not full and exhaustive. It is this ambiguity upon the subject that leads to the number of incomplete corrections that present themselves to our hospitals and induces me to record my experience during the year 1903. During that period 53 cases of congenital equino-varus were treated by me. Two cases were so slight that they were treated solely by manipulation. Of the remaining 51 cases, 40 were of the nature of relapsed cases or incomplete corrections, or were primary cases neglected during early infancy. These were all treated as in-patients, some by tenotomy, fasciotomy, syndesmotomy, and manipulation; others by the more severe methods of tarsal osteectomy or subcartilaginous enucleation. The remaining 11 cases presented themselves during early infancy and were treated as out-patients. They represented varying severities of the so-called second degree; in no case could the inversion, adduction, or plantar flexion be temporarily corrected by manipulation, however forcible. The age varied from two weeks to six months, averaging eight weeks. Nine cases were males and two were females. 14 feet were affected, the right foot in nine cases and the left foot in five.

The method of treatment adopted in all these cases was a slight modification of that first introduced by Dr. W. T. Little and afterwards emphasised by Mr. W. Adams. It is usually ascribed to the latter on the continent. It is an amalgamation of the principles of the mechanical method of Scarpa with the practice of subcutaneous tenotomy of Stromeyer. It consists of two stages: (1) the correction of the varus and (2) the correction of the equinus. Stage 1 is commenced as early as possible, in this anticipating the original operation by a few months. It consists of the subcutaneous division of the tendons of the tibiales anticus and posticus and flexor longus digitorum above the ankle-joint with immediate rectification of the varus so far as possible with subsequent manipulation to complete the correction, and in the intervals of manipulation the retention of the foot in the improved position by means of a padded malleable-iron splint. Manipulation at this stage is directed entirely to the correction and over-correction of the varus at the mid-tarsal joint. So long as, at this stage, the tendo Achillis remains taut, all movements in the ankle and astragalo-calcaneal joints are prevented, and we are at a mechanical advantage in overcoming the adduction and inversion at the mid-tarsal joints by being able to manipulate the fore part of the foot upon, as it were, a solid bar of bone extending from that joint to the knee. The method of manipulation

cannot be better or more tersely described than in the words of Hippocrates himself when dealing with club-foot: "In a word, as if moulding a wax model, you must bring to their natural position the parts that were abnormally displaced and contracted together, so rectifying them with your hands and with the bandaging in like manner as to bring them into their natural position, not by force, but gently." The time taken to correct the varus averaged in my series 30 days.

The main advantages of a malleable-iron splint over plaster-of-Paris are: (1) manipulation can be carried out at home in the intervals of attending the surgeon; (2) if the bandage or the splint are soiled by urine they can be taken off, dried, and reapplied or a second set can be immediately substituted; (3) the mechanical advantage is greater; and (4) the risk of ulceration of the skin is diminished. No ulceration or excoriation occurred in my series.

The second stage is then commenced without delay by subcutaneous division of the tendo Achillis with immediate rectification as far as possible and subsequent manipulation to complete the correction of the equinus, with retention of the foot in the intervals in a padded tin shoe of special design. This shoe has to be worn day and night and is only taken off for manipulation of the foot. It consists of a foot- and leg-piece firmly connected together, the foot-piece being set so as slightly to evert and to dorsi-flex the foot. By this shoe the foot is kept in an over-corrected position until the child begins to walk. Manipulation at the ankle is carried out at a great mechanical disadvantage, for the length of the fulcrum measures only from behind the mid-tarsal joint to the centre of the ankle. Care must be taken that an apparent correction of the equinus is not obtained by an over-extension at the mid-tarsal joint. This is liable to occur unless the anterior limit of the fulcrum is persistently borne in mind. The time occupied in correcting the equinus varies more than that of the varus and in my experience is usually longer. It is well at this stage to commence to correct any internal rotation of the leg or thigh by manipulation.

The results of the treatment may be recorded thus: feet with full correction, nine; feet with incomplete correction of the equinus, two; foot with incomplete correction of the equino-varus, one. The deformity in this case is associated with a condition of Mongolian imbecility. Two cases cannot be recorded, as one has left London and the other is in a fever hospital. The full correction of the internal rotation of the whole limb is still incomplete in all these cases.

A cure is not claimed in any case. The maximum effect of treatment at this stage is correction of the deformity. Relapse is constantly tending to occur in all and certainly will in some unless means are adopted to prevent that tendency. These means consist of a short daily manipulation, aided in the majority of cases, and in practically all hospital cases, by some form of walking apparatus. Hippocrates clearly recognised and insisted that cure by his method of manipulation was not attained till adult life, for he says, "This, then, is the mode of cure and it requires neither cutting, burning, nor any other complex means, for such cases sooner yield to treatment than one would believe. However, they are to be fairly mastered only by time and not until the body has grown up in the natural shape." The time occupied in the correction is shortened since the days of Hippocrates but not that in the cure.

The treatment of congenital equino-varus may be divided into two main schools: (1) those who treat during early infancy, employing various methods; and (2) those who wait till childhood has well advanced and then correct by one of the various major operative procedures. To turn to the latter first, the arguments used in its favour are the dangers of chloroform during early infancy, the risk of ulceration from pressure of the plaster case, the insufficient support of the latter because it softens with the urine, the long course of the treatment during which the child suffers pain, and the parents are much inconvenienced. The chloroform argument is twice answered; for, first, the risk in the hands of a skilled anæsthetist is no greater at the age of eight weeks for simple manipulation or tenotomy than it is at the age of six years for an extensive tarsectomy; and, secondly, in ten cases out of 11 in this series no chloroform at all was used. The plaster-of-Paris argument does not apply to this method as it was not used in any case.

The question of the length of treatment requires full consideration. Undoubtedly by postponing all treatment till, for example, the sixth year and then performing tarsectomy six years of treatment are avoided, but during those six years the child is crippled and deformed and a lasting impression is liable to be made upon the developing mind. I know of no serious claim for treatment of congenital equino-varus, except after-treatment, by which relapse can be avoided and I hold that no case can be claimed to be cured until the period when all growth has stopped. It is true that cases treated by tarsectomy at this age with subsequent ankylosis relapse less frequently than those treated by methods which retain free mobility of the tarsal joints, but such cases do relapse and it is impossible to say that any one particular case will not relapse; hence it is necessary to bestow care and supervision in all cases treated by tarsectomy and after-treatment in those which show a tendency to relapse. In my experience the most troublesome cases that we have to deal with are those which have relapsed after extensive bone sections and obliteration of many joints and I have grave doubts if the time occupied by the treatment of a series of cases at the age of six years by tarsectomy would be materially less than of a series commenced in early infancy, provided the mothers are stimulated by the surgeon to carry out his simple directions with care, perseverance, and enthusiasm.

In the present series three cases have been under treatment for 12 months and the patients have attended the hospital on the average 16 times, and I anticipate their attendance four times a year until the age of six years, thus bringing the total attendances to 36 in six years. In the case of a tarsectomy we must allow a stay in the hospital of at least 18 days. We can thus see that the figures are not altogether so unfavourable to the early treatment. The pain is slight and is inflicted at a time when the memory is undeveloped and impressions are obliterated at once. Indeed, in their treatment these babies often do not cry at all and if they do the cry is far less vigorous than that caused by the stimulus of an empty stomach. This argument need scarcely be considered further. This school is of recent date and is tending to grow and to cast into oblivion those apparently tedious and protracted means by which the treatment was carried out with steady advancement during the middle third of the last century. It depends upon the perfection of aseptic methods by which the surgeon can adopt more drastic methods with safety to the patient but, as it appears to me, without due regard to the functional activity and æsthetic appearance of the foot.

Far be it from me to minimise the enormous strides that aseptic surgery has enabled us to accomplish in cases of inveterate club-foot of adolescents. Our knowledge of the morbid anatomy has been increased by opportunities for observation during operative proceedings and our treatment has advanced *pari passu* with our knowledge of the morbid anatomy; our results are more certain with our increase in knowledge of the technique of aseptic surgery. All these points have combined to diminish the importance of the advantage, if not the necessity, of treatment during early infancy. I maintain that we should reserve such measures for the all too frequent class of relapsed and neglected cases of adolescence and that we should not be influenced by our success in such cases to slacken our efforts in early infancy.

Turning now to the school that advocates treatment during early infancy the methods are various but usually dogmatic. Thus Erichsen recommends a block-tin splint and manipulation to correct the varus and to convert the compound deformity into simple equinus; then manipulation or tenotomy of the tendo Achillis. In a considerable number of cases, he says, the inversion cannot be corrected until the tense structures which maintain it have been divided. Holding that the ligaments of the inner border of the foot play a more important part than the muscles in maintaining the deformity he recommends Parker's syndesmotomy. Accordingly the division of the tendons of the tibial muscles above the ankle has been replaced by the more efficient method of dividing the tense ligaments in the foot itself and by a single operation bringing the foot into the best possible position. My experience has so far been that a simple division of the tendons of the tibial muscles and the flexor longus digitorum, with immediate rectification of the deformity as far as possible and subsequent manipulation, has sufficed to convert the compound into the simple deformity in an average of 30 days.

Mr. H. H. Clutton, in Treves's "System of Surgery," advocates manipulation and plaster-of-Paris during the first few months of infant life. If the inversion is in great

measure corrected the tendo Achillis and post ligament of the ankle may alone require division. If deformity is uncorrected when the foot has been brought to a right angle or beyond this point he advises Phelps's operation. I think that if the tibial tendons are divided at the commencement of treatment part at any rate of the first few months of infant life are spared manipulation and plaster-of-Paris and if the division of the tendo Achillis is postponed until the varus is completely and not only in great measure corrected Phelps's operation at so tender an age can also be avoided.

The investigations of Parker and Shattock into the morbid anatomy of congenital equino-varus were the first to disturb seriously the ascendancy of Dr. W. J. Little's treatment. Parker advises the division of the tendo Achillis quite early in the treatment of these severe cases, for he says it is impossible properly to gauge the part played by other structures so long as the tendo Achillis remains uncut. The old argument, to leave it quite to the last, that it may serve as a *point d'appui* through which to exert mechanical force on the other structures, is wrong in principle since tenotomy has been introduced. If it prove necessary in any given case it may be taken for granted that the offending structures have not been divided. I have never tried this method in its entirety. I have on a few occasions divided the tendo Achillis before the varus was completely corrected and have found on each occasion the correction of the residual varus troublesome and tedious. I consider that this *point d'appui* is of the greatest advantage in the correction of the varus, for by it we are enabled to mould the cartilage and to diminish the angle of the neck of the astragalus and to straighten out the incurvation of the anterior extremity of the os calcis, both of which points in the morbid anatomy of congenital club-foot were shown by Parker with geometrical accuracy to be offending structures. But I am not aware that he ever divided or advocated division of these cartilages.

And lastly, if we turn for guidance to one of the most modern text-books of the present day we find that Rose and Carless say, "The tibial tendons are usually first divided and the tendo Achillis subsequently, although some surgeons, and especially Mr. Edmund Owen, recommend that the latter should always be first dealt with as this will occasionally suffice alone." No fairer or terser *résumé* of the teaching of the present day could be written than the above, but I must own that if I were confronted on some lone Pacific island with a case of congenital club-foot and given those directions I should be at a loss to know whether to nail my flag to the mast of Mr. Owen's always or to the unrecorded authority for the usual practice.

Bryanston-street, W.

AN EXAMINATION OF APPARATUS PROPOSED FOR THE QUANTITATIVE ADMINISTRATION OF CHLOROFORM.

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AND

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I.—INTRODUCTORY.

THE subjoined contribution to our knowledge of apparatus proposed for the quantitatively regulated administration of chloroform for anæsthetic purposes formed Chapter III. of a laboratory report of "Experiments and Observations relating to the Question of Chloroform Dosage," based upon experiments by Mr. J. H. Wells and by myself, presented to the special chloroform committee of the British Medical Association in July, 1903. It is important that facts and conclusions obtained by independent investigation relating to the question of safe and unsafe methods of effecting anæsthesia should not remain unpublished. I give, therefore, in its original form Chapter III. of the report (methods and apparatus for regulated administration). The chapter in question forms Section II. of the present paper. My further appreciation of the relative safety of the three forms of apparatus actually recommended in this country is an addition confirmed by further experience. It did not exist in the original report and forms Section III. of the present paper.

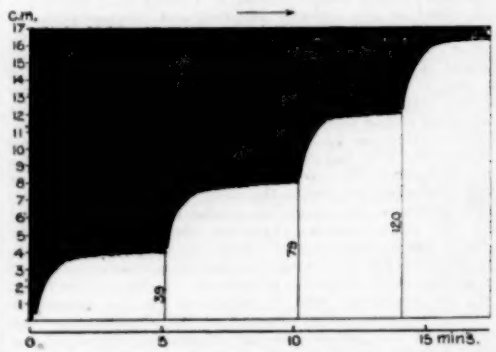
II.—QUANTITATIVE ADMINISTRATION.

The practical recommendation of the Scotch school of anæsthetists, "to give plenty of chloroform with plenty of air," translated into precise language, becomes an instruction to administer the vapour *ad libitum* diluted by from 50 to 100 times its volume of air. The large amount of chloroform used and its free admixture with air produce in effect a large volume of mixture and therefore a more nearly uniform supply to the patient's lungs than when small quantities and a closer method with its necessarily frequent alternations of "*off*" and "on" are resorted to. The drop method is a first approach towards quantitative administration. We have given considerable attention, therefore, to the definition and measurement of a drop of chloroform. The weight of a drop varies, of course, with the orifice of delivery; it is therefore easy to understand the origin of the very divergent weights attributed to a drop of chloroform by English, German, and French authorities. In Germany[1] an average drop of chloroform is stated by Eschbaum to weigh 38 milligrammes (= 7·6 cubic centimetres of vapour). In France[2] a drop of chloroform is stated by Dubois to weigh 66 milligrammes (= 13·2 cubic centimetres of vapour). Our statement is that from an average pipette, and from a stoppered bottle, the drop of chloroform comes out at 20 and 25 milligrammes (four and five cubic centimetres of vapour), and that from a given pipette a drop of chloroform is a very constant amount. Thus a drop of $CHCl_3$, the vapour of which is inhaled with an ordinary inspiration of from 400 to 500 cubic centimetres, supplies a 1 per cent. mixture of chloroform and air. At 16 inspirations per minute 16 drops, or from 0·320 to 0·400 gramme of chloroform at 1 per cent. dilution in air, would be inhaled and absorbed if the inhalation of the vapour were complete and continuous. And on this estimate anæsthesia should be induced in, say, 10 minutes by an absorption of between three and four grammes of chloroform, or between 2 and 2·6 cubic centimetres (*Anglice* = from 34 to 44 minims, or less than one drachm). We have regarded this small matter as important enough to deserve careful attention and have therefore made series of weighings of chloroform and of water delivery by various pipettes and bottles. We subjoin a series of weights obtained in grammes per 100 drops of liquid.

	Pipette A.	Pipette B.	Pipette C.	Bottle stoppered.	Bottle unstoppered.
100 drops of H_2O	5·700	4·908	2·723	13·597	7·193
100 drops of $CHCl_3$	1·849	1·307	1·275	2·285	2·430

Trial of pipettes of various-sized orifices taught us further (1) to adjust the orifice in the blow-pipe so that a pipette

FIG. 1.



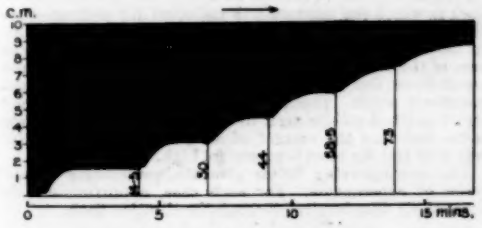
shall deliver as nearly as possible drops of chloroform weighing ten or 15 milligrammes—i.e., hundredths of a gramme or of a cubic centimetre; and (2) to use from such pipettes

[1] Eschbaum: Deutsche Medicinische Wochenschrift, No. 23, quoted by Dreser in Archiv für Pharmäkologie und Pathologie, Band xxxvii., p. 376.

[2] Dubois: Anesthésie, Paris, 1894, p. 98. The "normal pipette" recently proposed by Yvon (Etude sur le Compte-gouttes Normal, Journal de Pharmacie, 1903) has the following dimensions: Internal diameter, from 0·59 to 0·60 millimetre; external diameter, from 3·00 to 3·05 millimetres; and at the pressure of from two to four centimetres of liquid delivers 20 drops of distilled water to one gramme. The chloroform drop from this pipette weighs 0·0165 gramme; the water drop weighs 0·05 gramme.

the drop of chloroform as a ready and fairly trustworthy measure of a hundredth of a gramme or of a hundredth of a cubic centimetre. We subjoin a photographic proof of the degree of accuracy of this measurement of chloroform drops (Fig. 1). It exhibits the rise of a water manometer due to the rise of tension in a closed bottle (380 cubic centimetres) by the introduction of 1, 2, 3, and 4 drops of chloroform from a pipette delivering 100 drops per cubic centimetre. And incidentally it calls up a striking image of the vaporisation of chloroform dropped on to a Skinner's mask. Chloroform vapour is more than four times (4·2) as heavy as air. The next record (Fig. 2) exhibits the rise due to introduction of from one to ten drops in a larger closed bottle (1170 cubic centi-

FIG. 2.



metres) and incidentally brings out the fact that with increasing density of the little cloud of vapour formed by the successive drops the obstruction to vaporisation increases.

Snow's inhaler is set in action by the inspiratory movements of the patient himself. Air is drawn into the face-piece (and lungs) over chloroform, the surface of which is increased by slips of bibulous paper dipping into the liquid so as to give a mixture of chlorofrom and air that was estimated by Snow to be at 4 or 5 per cent.[3] Expiration was provided for by a wide orifice at the face-piece, inspiratory reflux being there prevented by a valve. And in order to provide for the further dilution of the inspired 4 or 5 per cent. mixture the expiration orifice of the face-piece was arranged to be closed more or less completely by the valve, so as to leave a less or more free way for the direct inspiration of atmospheric air, thus further diluting the mixture inspired. The mixture actually taken into the lungs consisted therefore of two moieties: (1) that coming at 4 or 5 per cent. over the chloroform surface and (2) that coming directly from the external air. At equality of 1 and 2 the mixture inspired was at 2 (or 2·5) per cent.; with the streams 1 and 2 in the proportion of 1 to 3 or to 4 the mixture was at 1 per cent., and so forth. Half this value—or 2 per cent.—is the "normal maximum" compatible with effective induction of anæsthesia on the one hand and freedom from unjustifiable danger on the other. Snow was working and teaching in 1846, after painstaking observations on himself, and his normal limit was at that time a right and proper statement of opinion. But at the present day, by the experience of the last 50 years, by the yearly increasing mortality list returned in official records, and by the daily experience of the laboratory, we are bound to say that effective anæsthesia should be induced by the continuous inhalation of chloroform and air between the limits of 1 and 2 per cent. The chief defect of Snow's method is, however, one of which Snow himself was fully aware.[4] The ingoing current of $CHCl_3$ depends upon the respiration of the patient and with *diminishing* respiration there is an *increasing* percentage of chloroform inspired. The method therefore offers a vicious circle whereby it is certain in conformity with the law of large numbers that a relatively high percentage of accidents must occur in spite of watchfulness by the anæsthetist, in spite of the fortunate fact that in given cases 4 or 5 per cent. or even more may for a period be administered with impunity. Therefore Snow's method and apparatus fell out of use. Nevertheless, and chiefly, we believe, in consequence of the all but complete abandonment of the attempt to administer quantitatively this potent drug, the death-rate, as given by the Registrar-General's returns, has steadily risen during the last 50 years. No doubt the number of cases in which chloroform has been employed has enormously increased and the raw figures of Somerset House are subject to criticism of detail. But, all discount allowed, it remains a reproach to us that cases still occur that can only be referred to ignorance of the power of the drug and of the quantities that are respectively (1) sufficient for anæsthesia and (2) dangerous to life.

The apparatus first introduced by Junker in 1860 for the administration of methylene bichloride has been applied to the administration of $CHCl_3$ and considerably modified for that purpose by various administrators. The best known and most widely employed form of apparatus is the model patented and sold by Messrs. Krohne and Sesemann. It delivers by a face-piece, freely open to the air, from which the patient inspires definite volumes of chloroform by means of a small accessory pump that drives measured amounts of air through a bottle containing liquid chloroform.

In the form of apparatus that we have examined the pump is formed by three elastic balls of a capacity which is intended to be 10, 30, and 60 cubic centimetres. These amounts are intended to carry into the inspiration ⅓, ½, and 1 minim of chloroform respectively, so that on the supposition that the average inspiration of the patient is 400 cubic centimetres, the percentage of chloroform in the air of each respiration will be:—

10 c.c. ball = ⅓ minim $CHCl_3$ = 3 c.c. vapour = 0·75% in 400 c.c. air.
30 c.c. ball = ½ ,, ,, = 9 c.c. ,, = 2·25% ,, ,, ,, ,,
60 c.c. ball = 1 ,, ,, = 17 c.c. ,, = 4·25% ,, ,, ,, ,,
(This calculation assumes that one cubic centimetre = 17 minims; and one minim of $CHCl_3$ = 0·062 gramme, yielding approximately 17 cubic centimetres of vapour.)

Trials were made under conditions as nearly as possible identical with the conditions of practical application of the apparatus to determine the accuracy of the nominal values. Five squeezes of the smallest ball were made delivering approximately 50 cubic centimetres of chloroform-charged air into a flask of 400 cubic centimetre capacity (T. = 13·5°C., B. = 700 mm. Hg, chloroform flask in water bath at 13·5°). The weight of chloroform delivered to the flask was 0·086 gramme—i.e., a percentage = 4·0 for five strokes, or 0·8 per stroke.[5]

A second series of trials was made with the largest ball in a similar way. The chloroform found in the flask was 0·064, being a percentage of 3·13 *found* as compared with 4·25 *nominal*, and the deficit in practice is even greater than this, as shown by the following series of trials in which the delivery was taken of five successive squeezes:—

TABLE I.

Temperature of air in laboratory.	Weight of $CHCl_3$ in flask.	Percentage of vapour in 400 cubic centimetres (nominally 4·25).
15·0° C.	0·064	3·13
15·0° C.	0·040	1·94
16·5° C.	0·046	2·24
17·0° C.	0·031	1·53
17·0° C.	0·024	1·18

The plan of delivering chloroform vapour into a flask is, we think, open to objection; our only reason for employing it was that it was desired to use the Harcourt method of combustion and acidimetry, as recommended by the chloroform committee, for the estimation of chloroform. A simpler and more direct method of estimating the amount of chloroform carried over by definite volumes of air pumped through the liquid is to weigh the chloroform vessel before and after each experiment. The average loss of weight (calculated from 50 squeezes of each ball) is shown in Table II.

[3] In two trials made on a Snow's apparatus this year (1904) the percentages 3·4 and 3·8 were observed by densimetry.

[4] Snow: Chloroform, pp. 85-86. 18 successive experiments by Snow gave the following results, translated from his scale of minims and cubic inches into the percentage scale:—0·38, 0·59, 0·76, 0·76, 0·77, 0·90, 1·18, 1·35, 1·50, 1·50, 1·50, 1·50, 1·7, 1·9, 2·1, 2·3, 2·8, and 2·9. Clover (*Medical Times*, 1862) proposed and employed a mixture of $CHCl_3$ and air at 4·5 per cent. of the former. Two years later the chloroform committee of the Royal Medical and Chirurgical Society recommended that the percentage should not exceed 3·5 (Transactions of the Royal Medical and Chirurgical Society, vol. xlvii., p. 326, 1864).

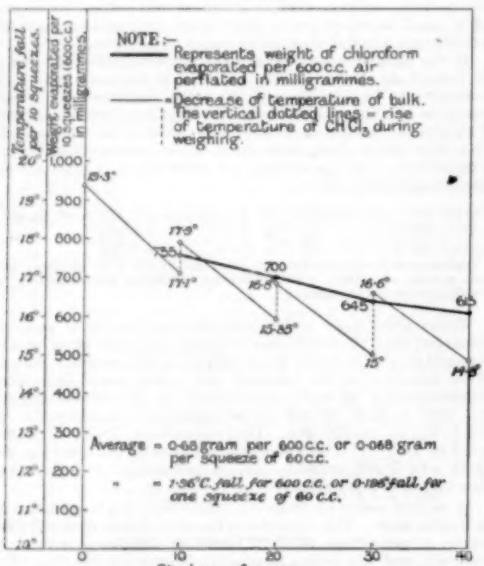
[5] 50 cubic centimetres of air saturated by chloroform vapour according to Regnault's data should contain 5·25 cubic centimetres of $CHCl_3$. The air blown through the chloroform was found to contain only 3·2 cubic centimetres—i.e., to be at about 0·6 of its full saturation.

TABLE II.

Ball.	Average weight evaporated per stroke.	Calculated percentage delivered in 400 cubic centimetres o air.	Nominal percentage in 400 cubic centimetres of air.
Small (10 c.c.) ...	0·016 gramme	0·8	0·73
Middle (30 c.c.) ...	0·036 ,,	1·8	2·2
Large (60 c.c.) ...	0·070 ,,	3·5	4·4

The effect of cooling of chloroform by evaporation upon its further evaporation has to be taken into account in the ordinary use of this apparatus and of that of Harcourt. The following table and record (Fig. 3) give a series of tempera-

FIG. 3.


NOTE:—
Represents weight of chloroform evaporated per 600 c.c. air perflated in milligrammes.
Decrease of temperature of bulk. The vertical dotted lines = rise of temperature of $CHCl_3$ during weighing.
Temperature fall per 10 squeezes.
Weight evaporated per 10 squeezes (600 c.c.) in milligrammes.
19·3°
17·9°
17·1°
16·6°
15·85°
15°
14·8°
Average = 0·68 gram per 600 c.c. or 0·068 gram per squeeze of 60 c.c.
= 1·56° C. fall for 600 c.c. or 0·156° fall for one squeeze of 60 c.c.
Strokes of pump.

ture and weight observations showing the order of alteration taking place in the temperature and in the chloroform delivery when the apparatus is used continuously for any length of time. We thought it necessary to test the alteration of yield (1) by plunging the inlet tube more or less deeply below the surface of the liquid chloroform and (2) by augmenting the area of the evaporative surface.

TABLE III.

I.—Variation of depth.

Approximate volume of air perflated.	Average weight evaporated. Depth of $CHCl_3$, 6 centimetres.	Depth of $CHCl_3$, 3 centimetres.
100 cubic centimetres.	0·16 gramme.	0·17 gramme.
300 ,, ,,	0·37 ,,	0·36 ,,
600 ,, ,,	0·66 ,,	0·71 ,,

II.—Variation of surface.—Depth of $CHCl_3$ in both series, three centimetres. Volume of air perflated, 600 cubic centimetres.

Diameter of surface = 35 millimetres. Area = 961·3 square millimetres.	Diameter of surface = 24 millimetres. Area = 452·3 square millimetres.
0·71 gramme.	0·57 gramme.

Estimations of the $CHCl_3$ delivery by Harcourt's tap and bottle.—In our determinations of the percentage of chloroform vapour delivered by Harcourt's second apparatus[6] the temperature of the air in the laboratory, the temperature of the chloroform in the bottle at the commencement of the experiment and at the end, and the barometric pressure were noted. In order to avoid obstruction of the inlet of the chloroform bottle the thermometer used for reading off the temperature of the chloroform has only been inserted at the commencement and end of the experiment—i.e., not while air was flowing through the bottle. The methods of determination have been by Harcourt's method and also by the densimetric method. In both series of determinations the air was drawn over the $CHCl_3$ by respiration, at about three-fourths of a litre per minute owing to narrow tubing used. A large flask was inserted between the flask in which the mixture was collected for estimation and the mouth. The size of the flask used for collecting has been in most of the experiments 400 cubic centimetres. In the case of the densimetric method the capacity was 250 cubic centimetres and the inlet and outlet tubes were comparatively small. The percentages obtained by the densimetric method will be seen to be high and we put this down to the fact that the current of air passing over the $CHCl_3$ was slow and the room temperature high.

The accompanying tables give the percentages in each series of experiments. For each case, approximately, ten litres of air were inspired through the titration flask.

TABLE IV.—*Examination of a Harcourt Regulating Inhaler Graduated to Deliver 0·5, 1·0, 1·5, and 2·0 per 100.*

Method of analysis.	Position of tap.	Temperature of laboratory.	Temperature of $CHCl_3$ at beginning and end of observations. T_1	T_2	Barometer.	Percentage of $CHCl_3$ vapour.
		°C.	°C.	°C.		
By incandescent platinum wire (Harcourt).	One-quarter on.	18·5	19·5	18·0	760 mm.	1·168
	,,	16·6	16·0	14·6	754 ,,	1·064
	One-half on.	16·0	16·2	14·0	754 ,,	1·387
	,,	16·0	18·5	15·0	760 ,,	1·303
	,,	19·5	18·0	16·5	754 ,,	1·667
	Three-quarters on.	19·5	14·5	13·0	738 ,,	2·264
	,, ,,	19·5	16·5	13·5	754 ,,	2·065
		°C.	°C.	°C.		
By gravimetric method (Waller and Geete).	One-quarter on.	21·0	17·2	16·0	765 mm.	1·259
	,,	,,	17·0	16·5	,, ,,	1·299
	,,	,,	17·0	16·5	,, ,,	1·279
	One-half on.	,,	17·3	16·2	,, ,,	2·498
	,,	,,	17·3	16·3	,, ,,	2·243
	,,	,,	17·5	16·5	,, ,,	2·234
	Three-quarters on.	,,	17·0	15·0	,, ,,	2·096
	,,	,,	17·8	16·5	,, ,,	2·53
	,,	,,	17·5	16·7	,, ,,	2·51
	Full on.	,,	17·5	16·0	,, ,,	4·211
	,,	,,	18·0	16·5	,, ,,	4·33
	,,	,,	19·0	17·5	,, ,,	4·447

Two control bulbs containing chloroform weighed by Dr. N. H. Alcock, the weight of which was unknown to us until after estimation, were taken. The bulbs were placed inside the combustion flask which was then fitted with its cork and platinum wires. The bulb was then broken by shaking the flask. The amount of hydrochloric acid formed at the end of half an hour's combustion was finally estimated by standard ammonia, the same solution being used as for the previous determinations.

Results:—

1. Weight of $CHCl_3$ taken = 0·0873 gramme.
   ,, recovered = 0·0861 ,,
   Recovery = 99·2 per cent.
   Deficit = 0·8 ,,
2. Weight of $CHCl_3$ taken = 0·0795 gramme.
   ,, recovered = 0·07583 ,,
   Recovery = 95·4 per cent.
   Deficit = 4·6 ,,

[6] Proceedings of the Royal Society, vol. lxx., p. 504, 1902.

TABLE V.—EXAMINATION OF A HARCOURT'S REGULATING INHALER GRADUATED TO DELIVER 0·5, 1·0, 1·5, AND 2·0 PER CENT. $CHCl_3$.

Position of tap.	I. Total volume of air drawn over the $CHCl_3$	II. Total volume per minute at 12 strokes per minute delivered to the pump or animal.	III. Loss of weight of $CHCl_3$ bottle. Chloroform flask. Temperature. Grammes	Initial.	Final.	IV. Percentage calculated from columns I. and III.	V. Gain of weight of 260 c.c. densimeter bulb. (The + column is the increment; the − column is the decrement on washing out the bulb with room air.) + Gramme	− Gramme	VI. Percentage by densimetry.	VIA.	Remarks.
Full on.	25·2 litres.	9168 c.c.	2·38	—	—	1·89	0·019	—	1·90	1·89	Temperature 22·7° C. Barometer 770 mm.
	12·6 ,,	4584 ,,	1·56	—	—	2·48	0·023	—	2·30	2·29	
	8·4 ,,	1834 ,,	1·29	21·8	20·2	3·08	0·031	—	3·10	3·09	
Full on.	16·8 ,,	4584 ,,	1·95	22·9	20·6	2·26	B 0·0260	0·0250	2·55	2·54	Temperature 22° C. Barometer 771 mm.
	,, ,,	,, ,,	1·86	22·4	19·7	2·21 Average = 2·05	0·0254	0·0254 Average = 0·0203	2·69	2·68	
	,, ,,	,, ,,	1·70	—	—	2·02	0·0250	0·0240	2·45	2·44	
Full on.	,, ,,	,, ,,	1·63	—	—	1·94	A 0·0160	0·0150	1·55	—	Temperature 22° C. Barometer 771 mm.
	,, ,,	,, ,,	1·61	—	—	1·91 Average = 1·94	0·0152	0·0142 Average = 0·0152	1·47	—	
	,, ,,	,, ,,	1·64	19·0	17·3	1·94	0·0150	0·0150	1·50	—	
Half on.	<8·4 ,,	,, ,,	1·04	20·8	19·4	1·24	A 0·0100	0·0100	1·00	—	Temperature 22° C. Barometer 771 mm.
	,, ,,	,, ,,	0·99	—	—	1·18 Average = 1·20	0·0100	0·0100 Average = 0·0102	1·00	—	
	,, ,,	,, ,,	0·99	—	—	1·18	0·0104	0·0104	1·04	—	
Half on.	,, ,,	,, ,,	0·98	19·7	18·6	1·17	B 0·0110	0·0100	1·05	—	Temperature 22° C. Barometer 771 mm.
	,, ,,	,, ,,	1·00	—	—	1·19 Average = 1·19	0·0106	0·0104 Average = 0·0098	1·05	—	
	,, ,,	,, ,,	1·02	—	—	1·21	0·0094	0·0094	0·94	—	
Full on.	16·8 ,,	,, ,,	2·35	—	—	2·80	0·0222	0·0222	2·22	—	Temperature 22·3° C. Barometer 767 mm.
	,, ,,	,, ,,	1·73	—	17·8	2·06	A 0·0174	0·0164	1·69	—	
	,, ,,	,, ,,	1·89	—	—	2·25	B 0·0256	0·0246	2·51	—	
Quarter on.	<4·2 ,,	,, ,,	0·42	21·6	—	0·50	B 0·0045	0·0055	0·50	—	—
	,, ,,	,, ,,	0·48	21·4	—	0·57	A 0·0040	0·0040	0·40	—	—
Three-quarters on.	<12·6 ,,	,, ,,	1·41	19·4	—	1·68	A 0·0144	0·0130	1·37	—	—
	,, ,,	,, ,,	1·36	18·8	—	1·62	B 0·0160	0·0156	1·58	—	—
Half on.	<8·4 ,,	,, ,,	1·03	—	—	1·23	B 0·0108	0·0104	1·05	—	—
	,, ,,	,, ,,	1·00	18·5	—	1·19	A 0·0100	0·0100	1·00	—	—

Each period lasted 3 minutes 40 seconds, except in the first three trials (the first lasted 5¼ minutes, the second 2 minutes 45 seconds, and the third 1 minute 50 seconds). The densimeter percentages in column VI. are simply taken out from the numbers of column V. If for greater exactitude we take them out by the formula given by Waller and Geets in the *British Medical Journal* of June 20th, 1903, p. 1421—i.e., log. P = 1·8391 + log. m. − log. V + log. T − log. H, and introduce corrections for temperature and pressure and for the bulb capacity which is not 260 cubic centimetres but 254 cubic centimetres—we obtain from the following abbreviated formula (log. P = log. m. + $\bar{2}$·9983) the percentages shown in column VI.A, which it was evidently unnecessary to complete. The primary purpose of these observations was to calibrate a Harcourt tap and bottle under the conditions of normal respiration. Two further points of value are evident from the results: 1. That the densimetric method of estimating the percentage of chloroform in mixtures of chloroform and air is exact as well as rapid; the error does not exceed 0·001 gramme. 2. That the agreement between the densimeter percentages and the percentages calculated (column IV.) from the relation *weight lost volume of air passed* is sufficiently close to permit the percentage delivery of apparatus to be controlled roughly by this means. (Densimeter readings require, of course, a chemical balance.)

FIG. 4.

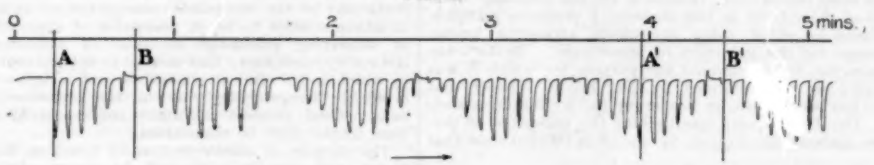
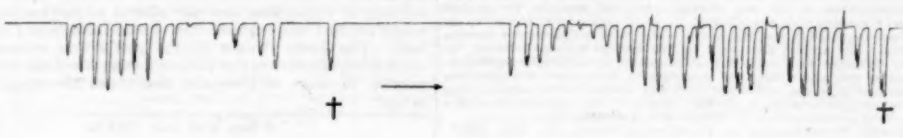


FIG. 5.



A third and more complete series of determinations was made of the chloroform delivery of a Harcourt's tap and bottle in its improved form[7] and under improved conditions of observation by the densimetric method. A measured volume of air was drawn through the tap and bottle by a suction-pump giving strokes of measured volume every five seconds—i.e., at a rhythm of 12 per minute. The chloroform bottle was weighed at the beginning and the end of the experiment (column III. of Table V.) affording when divided by the corresponding figure of volume from column I. and multiplied by 200 a first percentage datum of chloroform delivery. A 260 cubic centimetre densimeter bulb on the delivery-tube, weighed before and after observation, gave a second percentage datum. The accuracy of this second datum was verified in some cases by twin weighings, in others by a second weighing after washing out by room air and in all cases by the comparison with the first percentage datum. It is, of course, the percentage of the sample 260 cubic centimetres actually present in the bulb that is taken. It had been found that the delivery of the pump (worked up and down by a wheel) was not constant for each stroke but least at the turning-point of the excursion and greatest at the middle of the excursion. Series of strokes were therefore taken, beginning and ending—A at the turning-point of an excursion, B at the middle of an excursion—so as to have a last stroke with air at minimum and air at maximum velocity in each case. The individual densimeter readings exhibit a slight deficit in A and a slight excess in B, as compared with the average percentage. (Fig. 4.)

The irregularity of the pump was regular and very fortunately reproduced a phasic or Cheyne-Stokes rhythm. From our recollection of the variation of $CHCl_3$ tenour of the blood found in one of our experiments in correspondence with that rhythm we were led to examine whether a corresponding and opposite variation of percentage would be detectable in inspired air on our artificial animal with Cheyne-Stokes rhythm. In point of fact we found it did with nominal delivery of 1 per cent. The percentage of a sample taken at A was 0·9 and of a sample taken at B 1·2. With irregular and depressed breathing (Fig. 5), imitated by a pump, the percentage was 1·56, with irregular and augmented breathing it was 0·81; in another experiment at nominally 2 per cent. the reading was 1·67 after polypnœa and 2·78 after apnœa. Obviously these were no true mean percentages but merely qualitative indications of a sudden brief increase or decrease in the percentages taken up by the air in the $CHCl_3$ bottle. I have seen an excess of this apparent origin produce the sudden death of a rabbit.

Brodie's tap.—The ordinary method of chloroformisation used in most laboratories is based upon the same principle as that followed by Snow. The animal breathes—or is artificially insufflated—through a bottle with an inlet and outlet tube—or through a two-necked bottle—containing a little chloroform. The method is well known to be dangerous; animals frequently die even when the operator has been watchful; and the risk is greater with spontaneous than with artificial respiration, because in the former case the percentage of chloroform *increases* as respiration *decreases*.[8] To diminish the risk of this method Brodie[9] has adapted a regulating tap to the delivery tube of the chloroform vessel enabling the operator to dilute the mixture of chloroform and air by a further proportion of air as he may think fit. For the same reason—viz., because of the risk attendant upon the use of chloroform in this manner—I prefer to maintain anæsthesia by ether, using chloroform vapour of known percentage for the induction of anæsthesia. Brodie's tap has, however, fully answered the purpose for which it was designed; we are informed by Dr. Brodie himself that since it has been in use he has never had a chloroform accident. The fact is very intelligible; the estimates of percentage made at his request by one of us (Wells) show that the maximum percentage with the tap "full on" does not exceed 3 per cent. The following figures give the results of trials of Brodie's tap with an air current A driven, B drawn, through the chloroform vessel at the room temperature of from 19° to 20°.

TABLE VI.

Tap.	A, by propulsion.	B, by suction.
Half on.	0·65 per cent.	1·66 per cent.
Full on.	1·01 ,,	2·87 ,,

The air driven over by means of an artificial respiration pump came out at a lower chloroform percentage than the air drawn through by ordinary respiration; the difference was due to the fact that a larger volume of air passed through the bottle in the former than in the latter case. No gas meter was at the time available for the determination of these volumes.

Dubois's apparatus consists of a pump delivering continuously at any convenient rate between four and 20 litres per minute air charged with chloroform vapour at the nominal percentages of 1·2, 1·6, and 2·0. In a first rough trial lasting for two hours we found that the apparatus delivered a total volume of air of 1260 litres that took up 90 cubic centimetres, 135 grammes, of chloroform—i.e., 27 litres of chloroform vapour. This was a mixture of chloroform and air at a percentage of 2·14 per cent. (The total quantity of chloroform was ascertained by weighing; that of the air delivered was read off on a gas-meter.) Densimetric readings of samples of the mixture taken during the course of the trial were as follows: 2·0, 2·1, 2·1, and 1·9. We then submitted various animals to this mixture, placing them for the purpose under a bell-jar (capacity of 31 litres) through which the above mixture was driven at the rate of from ten to 20 litres per minute. Anæsthesia of a depth sufficient to permit surgical operation was induced in the following times:—

Minimum	4 minutes.
Maximum	8 ,,
Average (37 trials on 24 cats)	5½ ,,

In conclusion, I venture to repeat three statements made in 1897 and 1898[10]:—

1. Chloroform is not an uncertain agent. The effects it produces are proportional to the mass in which it acts.

2. For ordinary anæsthesia of the human subject the chloroform inspired should be between the limits of *1* and *2* per cent.

3. Death by chloroform is in the great majority of cases death by simple overdose.

And from the observations now reported to add:—

4. In the three forms of apparatus professing to deliver graduated amounts of chloroform the delivery under laboratory conditions is practically what it professes to be. The choice of apparatus is a matter of clinical convenience.

III.—SUMMARY REVIEW.

The clinical convenience of any given method of graduated chloroform anæsthesia is a far graver matter than mere ordinary convenience. From a clinical standpoint the apparatus that is the most convenient is also the most safe and it is not sufficient in a matter where instant and sudden death may be the immediate consequence of an irregularity of administration to be in possession of apparatus capable of delivering graduated amounts of chloroform under laboratory conditions; that method or apparatus is the safest by which under clinical conditions and in spite of the unavoidable irregularities due to the anæsthetist or the anæsthetised greatest uniformity and regularity of chloroform intake shall be maintained.

The dangers of administration by towel or lint are well known and can be minimised by expert administration. "Plenty of chloroform with plenty of air" is a maxim conducive to safe anæsthesia. And by means of densimetric determinations I have shown that the ordinary percentage of mixture of chloroform and air offered to respiration by this rough method lies between the desired limits of *1* and *2* per cent. The great danger of the method is cramming the chloroform fabric over the patient's face, when the percentage may be 10, more or less—i.e., five times the upper limit of safety.

[7] I.e., of the instrument patented under the designation of Harcourt's regulating inhaler, sold by Messrs. Griffin and Co.

[8] Worse errors may occur if the operator is careless; in one of our experiments a cat that had been successfully anæsthetised six times was anæsthetised in this way through a tracheal cannula; the animal stopped breathing and was allowed to go on again so as to inspire air that had stagnated in the chloroform bottle so as to illustrate a possible accident. The animal died from sudden cardiac syncope followed by cardiac dyspnœa and could not be recovered by artificial respiration. In another cat, where there was considerable obstruction of respiration by reason of apparatus connected with the trachea to estimate ingoing and outgoing chloroform, a similar "accident" was reproduced with a chloroform percentage = 5·75 (Record of Experiment 23).

[9] Brodie: Proceedings of the Physiological Society, Jan. 18th, 1902.

[10] Brit. Med. Jour., 1897–98.

Of the three apparatus for graduated administration examined above I consider that the order of clinical convenience and safety is: (1) the Dubois pump; (2) the Junker apparatus; and (3) the Harcourt inhaler. In all three methods the delivery under laboratory conditions is practically what it professes to be, but for clinical use each method has merits and demerits of which the general resultant is, in my opinion, in the order just stated. In my experience the principal points in the three cases respectively are as follows.

1. *The Dubois pump.*—The delivery of a more than sufficient volume of chloroform and air at percentages variable from 1 to 2 per cent. is correct in principle and easily accomplished in practice. The induction of anæsthesia is gradual and regular. The depth of anæsthesia is under control. There is no immediate danger caused by a brief remission of attention on the part of the anæsthetist and no undue strain of attention is requisite on his part. On the other hand, the instrument is expensive (£20) and relatively complicated and heavy (weighing 24 pounds). It can be forced or jammed by a clumsy manipulator, in which case, however, the evil effects are limited to the machine and do not increase danger of life. The surplus chloroform is inconvenient to anæsthetist and to operator. (This inconvenience is, however, trifling; a surplus of 10 litres of 2 per cent. mixture escaping into a space of one cubic metre gives a 2 per 10,000 dilution—i.e., it would take about 420 litres of 2 per cent. diffusing throughout an unventilated room 15 feet × 10 feet × 10 feet to give this same dilution of 2 per 10,000.) If used on a rickety table the delivery may be irregular; this disadvantage can be avoided by the use of a three-legged stool.

The Junker apparatus (Krohne and Sesemann).—The delivery of a just sufficient proportion of chloroform vapour at the commencement of inspiration is equally a correct principle but practically a very difficult matter to realise. The volume of inspiration varies, the delivery of a precise volume of vapour varies, the precise delivery at the commencement of each inspiration is difficult to secure, and the tax upon the attention of the administrator is exceedingly heavy. In many instances no regard is paid to the synchronism between inspiration and chloroform delivery, sometimes the synchronism is quite impossible to observe. The actual strength of chloroformisation must then be considerably in excess of its nominal strength.

The Harcourt inhaler (Messrs. Griffin and Co.).—An intake of chloroform governed by the patient's own respiration is theoretically an unsound principle, although it is the first to commend itself for adoption to anyone acquainted with the physical properties of chloroform and with perfect apparatus and a motionless patient it may no doubt be safely employed by an administrator familiar with the physical properties of chloroform. The principle cannot, however, be safely carried out without close attention to detail on the part of the administrator and there is in my opinion considerable risk of overdose. The mask must fit the face perfectly if air is to be inspired through the chloroform flask. With weakening respiration and slower air draft through the chloroform bottle the percentage of chloroform inspired is above the nominal percentage. The instruction to avoid splashing is difficult to fulfil unless the bottle is clamped to a fixed pillar and connected to the face-piece by a flexible tube as mentioned to be possible. A single shake of the bottle momentarily raises the percentage to more than double its nominal value. During agitation of the bottle, such as might easily occur in the attempt to keep the mask applied to a restless patient, I have seen the percentage as high as five times the nominal value. Under these conditions the instrument maker's scale is worse than useless—it is misleading and dangerous. The graduation, valid under laboratory conditions, is illusory under clinical conditions. No scale of quantity is preferable to an illusory scale of quantity. To keep a watch on the temperature beads is of importance only if other and more important points are not neglected. The instrument is very portable (weighing only one and a half pounds) and not expensive (£5 5*s.*).

The recognition of the general principle that chloroform is not an uncertain reagent, and that it produces effects proportional in gravity to the amount of anæsthetic absorbed, is of capital importance. That principle should not be allowed to depend upon the fortune of any particular apparatus. My own opinion was and is at variance from that of the Special Chloroform Committee of the British Medical Association. I regard the principle upon which apparatus such as that of Snow, Harcourt, and others are based, with the chloroform intake dependent upon the patient's own respiration, as being very liable to accident by overdose. Apparatus such as that of Dubois, by which an excess of chloroform and air of known percentage is freely supplied by propulsion to an open and loosely fitting face piece is in my opinion more convenient and therefore safer. The price and the weight of the Dubois apparatus appear to me to be of secondary importance. And even these secondary objections are very easily disposed of. An apparatus composed of a three-wick lamp delivering from 1 to 3 per cent. of chloroform mixture by evaporation answers all the laboratory purposes of the Dubois and will no doubt, like the Dubois, prove to be clinically convenient.

Note.—I may take the opportunity of correcting an arithmetical slip in Part I. of the lecture experiment described in THE LANCET of Nov. 28th, 1903, p. 1481, when it was said that "an animal was fully anæsthetised by chloroform absorbed at the rate of 27 milligrammes per minute." The total amount of chloroform absorbed was 270 milligrammes of $CHCl_3$ during a period of 7 minutes 40 seconds, so that the rate absorbed per minute was 35 instead of 27 milligrammes. In Table V. there is an apparent error by taking as a percentage datum the relation of column III. to column I. The error is insignificant and is left uncorrected because it happens to counterbalance a slight temperature error in the opposite direction.

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NOTE ON THE CONCENTRATION OF CHLOROFORM VAPOUR IN AIR DRAWN FROM BENEATH A SKINNER'S MASK.

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THE subjoined observations were undertaken at the suggestion of Dr. A. D. Waller. Their object was to ascertain the concentration of chloroform vapour in air, drawn by aspiration from beneath a Skinner's mask, in circumstances reproducing in depth and frequency the conditions which obtain when it is drawn from such a mask by respiration of the human subject. Aspiration was performed from 10 to 30 times a minute by bellows actuated by a winch and crank and adjusted to aspirate from 350 to 800 cubic centimetres per stroke. The aspirated air was sampled in a densimeter bulb connected to the rest of the apparatus by indiarubber bags, so that it could be stoppered and removed without entrance of atmospheric air.[1] The concentration of chloroform in the vapour was determined by weighing the densimeter: (*a*) full of air; and (*b*) full of the aspirated vapour, and estimating the chloroform from (1) the increase in weight of the bulb due to the chloroform, (2) the volume of the bulb, and (3) the calculated difference in weight between equal volumes of chloroform vapour and air. The second and third factors were so related that at ordinary temperatures and pressures an increase in weight of ten milligrammes indicated 1 per cent. of chloroform vapour in the bulb.[2] The air stream was maintained through the densimeter in one direction, by means of the valve, and returned to the mask by a side tube. The mask rested on a folded cloth on which lay the tubes leading to and from the densimeter. The amplitude of the aspirations was measured by a spirometer. In all observations the temperature of the laboratory was between 15° and 17° C., and the height of the barometer was between 755 and 760 millimetres. Chloroform was applied to the mask by continuous dropping or by a single douche. The concentration of the vapour in the densimeter was substantially constant for an indefinite time during continuous dropping; after a douche it gradually subsided.

[1] Waller: Proceedings of the Physiological Society, July, 1903. Waller and Collingwood: Proceedings of the Physiological Society, December, 1903.

[2] This empirical graduation was checked at intervals by the usual correction for temperature and pressure. In no case was the correction of sufficient magnitude to suggest its insertion.

TABLE I.—*Showing the Fall in Concentration of the Vapour after Douches on Different Fabrics; Amplitude of Aspirations, 500 cubic centimetres; Frequency, 20 per minute throughout the Series.*

Chloroform used.	Number of aspirations before sampling.	Concentration of vapour.	
		With close fabric on mask (flannel).	With open fabric (domett).
1 c.c. douche.	5	1·0 per cent.	1·6 per cent.
" " "	10	1·0 "	1·5 "
" " "	20	0·8 "	1·0 "
3 " "	5	2·4 "	2·9 "
" " "	10	1·7 "	2·3 "
" " "	15	1·6 "	2·1 "

TABLE II.—*Showing the Effect of Varying the Quantity of Chloroform applied to the Mask.*

Chloroform applied.	Amplitude of aspiration.	Frequency of aspiration.	Concentration of vapour.
10 drops per min.	350 c.c.	10 per min.	0·65 per cent.
20 " "	" "	" "	1·0 "
30 " "	" "	" "	1·4 "
40 " "	" "	" "	2·0 "
43 " "	" "	20 "	1·1 "
55 " "	" "	" "	1·2 "
66* " "	" "	" "	1·4 "
1† c.c. douche.	400 "	10 "	1·7 "
" "	" "	" "	2·1 "
3 " "	" "	" "	2·5 "

* 65 drops from the burette employed = one cubic centimetre.
† The estimations in this series were made after ten aspirations.

The concentration of chloroform in the densimeter did not increase proportionally to the amount applied to the mask.

TABLE III.—*Showing the Effect of Varying the Frequency of Aspiration with Amplitudes constant in each Set of Trials.*

Amplitude of aspiration.	Frequency of aspiration.	Chloroform used.	Concentration of vapour.
500 c.c.	10 per min.	3 c.c. douche.	3·2 per cent.
" "	20 "	" "	2·8 "
600 "	10 "	45 drops per min.	1·2 "
" "	20 "	53 " "	0·95 "
" "	30 "	59 " "	0·8 "
350 "	10 "	4·5 c.c. dropped per min.	4·2 "
" "	20 "	4·25 " " "	3·0 "
" "	30 "	5 " " "	3·1 "

For a given quantity of chloroform used greater frequency led to lower concentration.

TABLE IV.—*Showing the Effect of Varying the Amplitude with Frequencies constant in each Set of Trials.*

Amplitude of aspiration.	Frequency of aspiration.	Chloroform used.	Concentration of vapour.
350 c.c.	20 per min.	55 drops per min.	1·2
700 "	20 "	69 " "	1·0
400 "	10 "	2 c.c. douche.	2·1
800 "	10 "	2 " "	2·0
400 "	10 "	3 " "	2·5
800 "	10 "	3 " "	2·2

For a given quantity of chloroform used, greater amplitude led to lower concentration. The effect of varying amplitude is, however, less marked than that of varying frequency (compare Table III.).

From these experiments it appears that at ordinary room temperatures with moderate and approximately equal quantities of chloroform the Skinner mask yielded vapour of fairly uniform concentration between the desirable limits of 1 and 2 per cent., but reaching as high as 3 or 4 per cent. when the chloroform was copiously applied. The more open of the two fabrics employed gave vapour of higher and, with douches, less uniformly sustained concentration than the closer one. Aspirations of lower frequency and smaller volume led to greater concentration. Comparison of the drop and douche methods showed that a desired concentration is as certainly attained and more uniformly sustained by the former than by the latter.

It is obviously not legitimate to assume that a given quantity of chloroform, whether by drop or douche, would necessarily yield to the human subject vapour of concentration identical with that found above, even if respiration tallied in depth and frequency with the aspiration employed. It is, however, reasonable to conclude that changes in respiration will produce variations in concentration in the same sense as similar variations in physical aspiration, and to emphasise the caution that fall in frequency and depth of respiration may lead to inhalation of dangerously concentrated vapour, even when the amount of chloroform used is apparently not excessive.

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THE MEDICINAL PEROXIDES HOPOGAN AND EKTOGAN.

BY DR. M. FRENKEL.

WHEN presenting these chemical bodies for the first time to the medical world, in a lecture before the Société de Médecine in Paris about 18 months ago, I felt inwardly convinced of the great therapeutic importance of these preparations, a conviction, however, which was based only upon chemico-physiological facts, such as had been referred to in periodical medical literature.[1]

Hopogan is a peroxide of magnesium and ektogan is a peroxide of zinc. Both bodies are very rich in oxygen and their formulæ MgO_2 and ZnO_2, as well as their reaction when tested, show the greatest analogy. Both are definite chemical products exhibiting a constant composition. Both peroxides are producers of oxygen in a very active state. In hopogan, which is destined for internal use, the oxygen is combined with a mild base, magnesia; whilst in ektogan, which is destined for external, surgical, and dermatological application, the oxygen is combined with oxide of zinc. The action of the two peroxides which manifests itself physiologically in their peculiar antiseptic qualities is identical. Hopogan is suitable for use as an internal antiseptic, an anti-fermentative for abnormal stomachic and intestinal fermentations. It differs from other internal antiseptics on account of its non-poisonous, non-astringent, and yet powerful germicidal action. The moment that hydrogen peroxide is formed from the magnesium peroxide and acts on the abnormal fermentation-exciters and fermentation-products it is reduced to water, leaving harmless magnesium salt behind. According to Professor Gilbert, clinical experience shows that no acid is required to liberate the active oxygen contained in hopogan but that the ferments existing in the intestinal juice readily bring about the decomposition of the hopogan and the antiseptic effect connected therewith.

Speaking of clinical results, the trials made by Professor Albert Robin[2] seem to show distinctly that hopogan is a specific anti-fermentative and according to its action the probable origin of diarrhœa may be determined. If diarrhœa is caused through abnormal fermentations hopogan acts with absolute certainty, effecting most rapidly intestinal disinfection and reducing, within 24 hours, for instance, the number of motions from 12 to two of normal condition. On the other hand, Professor Robin says that in cases of

[1] THE LANCET, July 26th (p. 252) and Sept. 6th (p. 678), 1902, and Jan. 2nd (p. 35), 1904; Brit. Med. Jour., Jan. 24th, 1903; Medical Review, May, 1904; and Medical Times and Hospital Gazette, March 15th, 1904.
[2] Bulletin de la Société de Thérapeutique de Paris, 1904, No. 6, p. 178.

diarrhœa of serous or vaso-motorial, or nervous, or tuberculous origin hopogan frequently does not act. This result differs from the one which Professor Gilbert[2] obtained with hopogan. He distinctly says that the peroxide "ne s'est pas montré seulement actif dans les affections gastriques, mais nous avons constaté ses bons effets dans le traitement *de la diarrhée en particulier chez les tuberculeux*."

Further observations are needed in order to decide whether hopogan acts as a general anti-diarrhœic or exclusively as an anti-fermentative anti-diarrhœic. Professor Robin, however, describes one case of diarrhœa with phthisis and one with pleurisy successfully treated with hopogan, whilst Professor Gilbert observed rapid success in 11 cases of diarrhœa out of 16 treated with hopogan. The result was negative in one case of tabes dorsalis and in one case of carcinoma of the pancreas in the last stage. In the cases above referred to hopogan was prescribed in the form of keratine capsules in order to obtain the full effect of the active oxygen in the intestines. But with the keratine capsules Professor Robin also combined the treatment with hopogan powder. The dose may be increased from one to three grammes per day.

Professor Gilbert has made numerous trials with hopogan powder and tablets in cases of affections of the stomach produced by abnormal fermentations and in 20 cases out of 22 he has obtained very favourable results. The following conditions were treated: constantly furred tongue, bad taste in the mouth, odourless as well as fetid belching, eructations, sickness, vomiting, and flatulence in the epigastrium accompanied by oppression of the heart after meals. Improvement took place soon after the first or second day, but in order to obtain lasting results the treatment had to be continued for two or three days after disappearance of the last symptoms of illness. During the trials the food of the patients was not modified. Against pains in cases of gastritis alcoholica the preparation was effective in three out of eight. In cases of tuberculous or neoplastic anorexia the result was always negative. Professor Gilbert concludes that it is absolutely due to the oxygen *in statu nascendi* that hopogan has such good effect.

With regard to the action of ektogan Dr. Chaput expresses himself just as categorically. In the treatment of wounds he reported to the Paris Surgical Society some remarkable results. The principle of antisepsis by means of active oxygen is here effectively carried out. The manner of applying the preparation may be in the form of ektogan powder, ointment, or gauze. I will not dwell here upon the details of the copious report and must refer the reader to the original.[4] Suffice it to say that Dr. Chaput concludes his remarks as follows: "Ektogan (peroxide of zinc) is an excellent remedy for the treatment of surgical wounds. It is neither toxic nor caustic; it can be sterilised by heat. When in touch with wounds it develops oxygen continuously. In form of powder, gauze, or ointment it gives excellent results in treatment of aseptic or infected wounds, torpid wounds, eczema, and dermatitis. For uterine and vaginal bandages, ektogan is an advantageous substitute for aseptic and iodoform gauze." It is odourless.

It is satisfactory to find that the good effect of remedies as anticipated by their chemico-physiological behaviour is realised in practical application.

Honfleur, France.

ON THE FREQUENCY OF ASEPTIC NECROBIOSIS OR RED DEGENERATION OF FIBROMYOMATA OF THE UTERUS.

WITH A REPORT OF TWO CASES.

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THE ordinary hard fibromyoma of the uterus presents to the naked eye on cross section a white, glistening, satin-like, whorled appearance which along with its distinct and well-marked encapsulation and its contrast with the surrounding pale pink myometrium is striking and characteristic. Equally striking and characteristic is the appearance presented on cross section of a uterine fibromyoma which is undergoing aseptic necrobiosis or red degeneration. The tumour is usually single, with a well-marked capsule, is softish in consistency, distinctly red, mahogany or liver-coloured, fleshy looking, and loose textured, having been compared to raw beef steak. It will thus be evident that attention is immediately attracted to this condition on making a section of such a tumour, for there is nothing in its external appearance before section to indicate its nature. Hence it is remarkable how little attention has been paid to the latter condition, for in the majority of the gynæcological textbooks there is not even the slightest hint that this condition does occur.

The subject has, however, been so recently and so fully described by Dr. J. S. Fairbairn, both from a pathological and from a clinical standpoint, in a paper entitled "A Contribution to the Study of one of the Varieties of Necrotic Change, the so-called Necrobiosis in Fibromyomata of the Uterus" in the *British Journal of Obstetrics and Gynæcology* for August, 1903, that nothing remains to be added to his description and it is therefore unnecessary again to describe the condition. I would rather limit my few remarks, therefore, to the frequency with which it is found.

The only published statistics that I can find in this connexion are those contained in Dr. Fairbairn's paper, which is chiefly based on material obtained in the pathological department of the Chelsea Hospital for Women. During Dr. Fairbairn's tenure of the office of pathologist 105 specimens of uterine fibromyomata were examined in the pathological laboratory and of these ten, or 9·5 per cent., were affected in this way. During the last two years the pathological department of this hospital has been under my charge and 124 specimens of fibromyoma of the uterus have been examined and only two, or 1·6 per cent., were found showing this condition. These figures, along with those from the gynæcological wards of St. Thomas's Hospital, quoted by Dr. Fairbairn may be tabulated thus:—

—	Number of fibromyomata examined.	Number of fibromyomata showing necrobiotic changes.	Percentage affected.
St. Thomas's Hospital, 1897–1901	88	7	8·0
Chelsea Hospital for Women, Series I. ...	105	10	9·5
Chelsea Hospital for Women, Series II. ...	124	2	1·6
Total...	317	19	6·0

Thus we have a total of over 300 specimens of fibromyomata of the uterus examined which is, I think, a sufficiently large number to give an approximately correct estimate of the frequency with which these tumours undergo necrobiotic changes, and this works out to very nearly 6 per cent.

The two cases showing this condition in the second series from the Chelsea Hospital for Women (for permission to record which I am indebted to the kindness of Dr. W. H. Fenton and Dr. W. F. Victor Bonney) are as follows.

CASE 1.—A married woman, aged 44 years, was admitted into the Chelsea Hospital for Women on Jan. 8th, 1904, under the care of Dr. Fenton, complaining of menorrhagia, metrorrhagia, burning sensations in the lower abdomen, and pain in the back on sitting. Menstruation commenced at the age of 18 years and was quite regular until marriage at the age of 24 years. The performance of this function has always been attended with much pain. The patient had been married 20 years and had had no children but four miscarriages. Ever since marriage menstruation had been very irregular, generally occurring every two or three weeks and scarcely ever going the full month. The loss had always been free and accompanied by clots and much pain. The condition had been much worse for the last 12 months, the flow gradually becoming more profuse until at last it became continuous. For two months before admission, however, there was complete amenorrhœa. For the last two years the patient had noticed a sensation of pressure in the sacrum on sitting and had had paroxysmal

[2] Comptes Rendus de la Société de Biologie de Paris, 1904, No. 11, p. 486.
[4] Bulletin de la Société de Chirurgie de Paris, 1904, No. 15, p. 437.

attacks of labour-like pains and burning sensations in the lower abdomen. For the last few months there had also been a thin white vaginal discharge. Micturition had been normal and the bowels had been regular throughout. On palpation of the abdomen nothing abnormal was discovered but vaginal examination revealed the presence of a tumour lying in the pouch of Douglas. The tumour was of the size of the closed fist, was hard, not tender, more or less fixed, and lay in close relationship to the uterus. It gave to the examining finger the sensation given by a fibromyoma. Immediately in front of it was the cervix, which was displaced forwards close to the pubic symphysis.

Dr. Fenton opened the abdomen on Jan. 15th and explored the pelvis. A large fibroid uterus was found. The tumour was discovered to be growing chiefly from the posterior wall of the uterus and to be burrowing its way down towards the cervix. The uterus with its contained fibroid was removed by supravaginal hysterectomy. Both uterine appendages were removed along with the uterus. The abdominal wound was sewn up in three layers. Recovery was rapid and uneventful except for a slight rise of temperature on the second, third, and fourth days after operation, the highest point reached being 100·4° F. The patient left the hospital on Feb. 3rd, the twentieth day after operation.

An examination of the specimen removed at operation showed an enlarged uterus with both appendages attached. On incising the uterus its posterior wall contained a single interstitial fibromyoma of the size of a cricket ball which was growing down behind the cervix. It presented the red, liver-coloured, loose-textured appearance characteristic of red degeneration. Both uterine appendages appeared to be perfectly normal. Microscopically the sections were found to take on the stain in an irregular and patchy manner, so that portions of the section showed interlacing bundles of fibrous and muscular tissue, in which, as in undegenerated fibromyomata, the nuclei were deeply stained and the muscle bundles clearly differentiated. In adjacent parts the nuclei were more faintly stained, forming "nuclear ghosts," whilst in other places there was an almost entire disappearance of the nuclei. In these places the muscle bundles had also failed to take the stain well and appeared granular and transversely fragmented, having also a somewhat hyaline or swollen appearance, so that the outlines of the individual muscle fibres can only be recognised with difficulty.

CASE 2.—The patient, aged 40 years, was admitted into the Chelsea Hospital for Women under the care of Dr. Bonney on Nov. 2nd, 1903, complaining of swelling of the abdomen. She had been married four years and was sterile. The catamenia had always been regular, lasting four days, and had been very profuse, necessitating the use of 18 diapers. There were no clots until the last period and there had never been any pain. The first symptom to be noticed was swelling in the left iliac region. This was two years before. The abdominal enlargement gradually increased until September, 1903; since then when "she caught a very severe cold" it had become much larger. There had been an absence of pain throughout. There had been no vaginal discharge and micturition and the bowels had been normal. On abdominal examination a large tumour-mass of irregular outline was found to occupy the lower abdomen and to extend slightly above the level of the umbilicus. It was of very dense consistence and slightly moveable. No souffle could be detected over it. On vaginal examination the cervix was almost obliterated from the universal distension which the uterus had undergone from its occupation by the tumour. It was freely moveable.

On Nov. 10th Dr. Bonney performed abdominal hysterectomy, removing the right, but leaving the left, ovary. Recovery was rapid and uneventful, the highest temperature after operation being 99·6° F., and the patient was discharged from hospital on Nov. 27th, 17 days after operation.

In this case also the tumour was a single interstitial fibromyoma rather larger than the closed fist. It was well encapsuled and of the typical homogeneous mahogany-red colour, having also the faint fishy odour, due probably to the presence of trimethylamine. Microscopically there were the uneven and patchy staining of the sections, the appearance in places of "nuclear ghosts" and the almost entire disappearance of nuclei in other places, and the muscle bundles displaying the granular and transversely fragmented or swollen hyaline appearance, with difficulty of recognition of the outlines of the unstriped muscular fibres so characteristic of this condition.

ADENOMYOMA OF THE UTERUS.

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ADENOMYOMA of the uterus has escaped proper recognition in this country. With the exception of a paper recently published by Cameron and Taylor[1] we can find no detailed account in British medical literature; since then a few specimens have been shown at the medical societies. We have had the opportunity of investigating several others, some of which are herein referred to, in a comparatively short period of time, a circumstance which leads us to believe that these tumours are not very uncommon and that a routine microscopic examination of uteri, the seat of so-called fibroids, would bring to light many more cases of this interesting condition.

As the name implies, these tumours are new growths composed of muscular and gland elements, the latter typically being imbedded in a richly cellular connective tissue. Situated anteriorly, posteriorly, or laterally in the uterus, subserous, interstitial, or submucous, they have in almost all respects the general macroscopic characteristics of a fibromyoma, with which, indeed, they are sometimes associated, as two of our cases show. There are perhaps only two points which may lead to a diagnosis—the absence of a definite capsule and the absence of whorls so characteristic of fibromyomata. Their commonest situation is dorsally near one or other of the tubal angles. They vary in consistence and have been classified as hard, cystic, soft, and telangiectatic.

The clinical characters are those of fibromyomata, from which we do not think they can be distinguished by examination. Severe dysmenorrhœa and excessive hæmorrhage are, as a rule, marked features and considerably affect the patient's general health. Sterility is by no means an invariable accompaniment and not one of the cases we have seen has been pathologically so, though, according to Freund, the majority are barren. They may have a frail childhood, a laggard puberty, an arrestment of the growth of the sexual organs, and they usually suffer from anæmia. When the tumour occurs in its commonest situation Funke proposes the following as a means of clinical diagnosis: (1) localisation of the tumour at one or other of the tubal openings in the uterus; (2) the diffusely infiltrated consistence of the growth; (3) painfulness on palpation; (4) the severity of the symptoms produced by such a small lesion; (5) the absolutely normal condition of the tube itself; and (6) the improbability of a circumscript infiltration of a part of the uterus amidst healthy surroundings being due to inflammatory processes.

We have little doubt that adenomyomata imperil the life of the patient much more than ordinary fibromyomata. Their association with adenocarcinoma has been noted by several observers,[2] and even in the most regularly formed adenomyomata it is doubtful if one can reckon the possible powers of infiltration. Hysterectomy is therefore the only treatment and when removed successfully the result to the patient is excellent. Castration is useless and in no way influences the tumour growth.[3]

Microscopically they are composed of gland tubules imbedded in muscular tissue. The gland cells may abut directly on the muscular fibres but in the great majority of cases there is more or less intervening cellular tissue. The relative proportion of the constituents determines the consistence of the tumour, hard adenomyoma having a preponderance of muscular tissue, soft adenomyoma being composed mostly of adenomatous and lymphadenoid tissue. The tubules may be much distended and cystic spaces so formed are obvious to the naked eye—cystic adenomyomata. The tubules are composed of a single layer of columnar, sometimes ciliated (see Fig. 1), epithelial cells, each of which

[1] Journal of Obstetrics and Gynæcology, March, 1904.
[2] Cullen and others.
[3] Ibid.

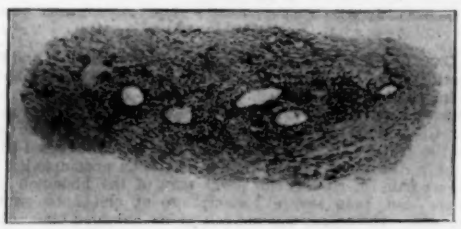
contains a single round, oval, or even rod-shaped nucleus of good staining property. The basement membrane is intact. Where the tubules are dilated the epithelium becomes cubical, flattened, or is quite lost. The spaces contain clear fluid, in which may be found a few red blood corpuscles or the remnants of epithelial cells, nuclei with some attached

FIG. 1.

Section showing gland epithelium and surrounding lymphadenoid stroma. Near the centre the cilia are shown. (From Case 4.)

protoplasm. Surrounding the tubules is a richly cellular lymphadenoid stroma composed of round, spindle-shaped, or many branched cells with round nuclei—a tissue identical with the extraglandular stroma of the normal corporeal endometrium. A varying number of tubules are imbedded in, and separated from each other and the surrounding muscle by, this cellular mass; there is usually a central acinus larger than the others and their relative position, shown in Fig. 2, like foot-tracks on soil, has been described

FIG. 2.



Camera-lucida drawing of a glandular islet surrounded by muscle.

as the "gooso-step arrangement."[4] In those tumours in which the lymphadenoid tissue is at a minimum this arrangement is lost and the tubules are scattered over the section separated by muscular strands. In the same section one may find both conditions—the association of several acini in a cellular islet and the direct juxtaposition of gland and muscle without intervening stroma. In tumours belonging to the latter type there is a tendency to intraglandular inversion of the epithelium; a fold of epithelium still keeping its basement membrane intact grows into the lumen and is approached by a similar plication from the opposite side; the epithelial summits meet and, losing their epithelium, coalesce; and the basement membranes offering no resistance the two processes of ingrowing fibrous tissue become continuous. At other parts in place of complete glandular subdivision such as this there is a simple intracystic growth, a more or less dichotomous branching of the inverting epithelium. The infiltrating character of the growth combined with this tendency seems to us to raise it from the category of typically simple tumours. As in fibromyomata, the relative proportions of muscular and fibrous tissue vary. Well-formed blood-vessels, frequently with hypertrophied coats, are found in the muscular tissue as well as more delicate vessels in the cellular islets; in the very soft telangiectatic variety of adenomyomata the blood-vessels are extremely numerous and there may be dilated blood spaces. Frequently, perhaps in the great majority of cases, a definite connexion between the gland-containing cellular islets and the endometrium is to be found, the utricular glands and interglandular stroma dipping down into the myometrium, evidently continuous with the glandular constituents of the tumour. A microscopic section would of course show several of these endometrial inclusions as islets completely surrounded by muscle. This encroachment of endometrium on myometrium is not uncommon in hypertrophic endometritis and sections of the latter might show an occasional inclusion, but we do not think the presence of such merely directly under the endometrium in the absence of any definite tumour formation would justify the name of adenomyoma.

The cases here related will illustrate the foregoing sketch.

CASE 1.—We are very grateful to Mr. J. Bland-Sutton for this case. The patient was 49 years of age and had sought advice for severe hæmorrhages occurring over a period of three years. She was a multipara and her last pregnancy occurred six years previously. The diagnosis of fibromyoma of the uterus was made and consequently supravaginal hysterectomy was performed. The uterus was five inches in length and before section the appearance denoted the occurrence of an intramural fibroid. However, on section no capsule to the growth could be observed and the whole wall could be differentiated into three layers: 1. A layer of ragged endometrium. 2. A mass of striated tissue the fibres of which intersected each other in all directions. The absence of whorling was readily noticed. 3. A layer of ordinary uterine muscle about one-third of an inch in thickness. This condition existed in the whole uterine body. On microscopic examination the growth was found to be characteristic of adenomyoma. Gland spaces occurred throughout the sections; an abundant stroma resembling in every detail the tissue met with immediately under the lining epithelium of the uterus separated these tubules from the surrounding fibro-muscular structure. The epithelium of the tubules was columnar in shape and these were placed on a basement membrane which at every part was quite intact. No cilia could be detected in any of the spaces, but the epithelium otherwise resembled that of normal endometrium. At certain parts the endometrium could be seen dipping into the uterine wall so that here and there the rich lymphadenoid tissue around the acini communicated directly with that in the endometrium. At other parts the muscular fibres of the uterus could be seen encroaching on these peninsula-like ingrowths, and eventually on the muscular fibres becoming approximated an islet consisting of uterine endometrium lay inclosed in muscular tissue.

CASE 2.—For the kind permission to use this case we are indebted to Mr. F. B. Jessett. The patient was aged 33 years. She had been married 11 years. She had had two children and two miscarriages. Her previous health had been good and the menstrual history was unimportant. Three years previously when five months pregnant she fell from a train; she was not hurt but was much frightened and consequently aborted. She was confined to bed for three months with pelvic pain and attacks of shivering. Ever since menstruation had been irregular, there had been three or four severe floodings, and she seldom went more than nine or ten days without some hæmorrhage. There were no bladder or rectal symptoms. She was not markedly anæmic. The uterus, which was removed by vaginal hysterectomy, was of about the size of a three months pregnancy. The cavity was three and a half inches long by one and a half inches broad towards the middle. The walls were thickened on all sides especially ventrally where the distance from serosa to mucosa was two inches. There was no encapsulation of this part. Three strata could be determined—a layer under the endometrium a quarter of an inch thick, a roughly reticulated stratum in the middle, and an external regular muscular layer half an inch thick. Two small polypi of the respective sizes of a filbert and a pea were found projecting into the cavity near the fundus. (Fig. 3.) Microscopically the tumour consisted of muscular tissue, the

[4] Ibid

strands running in all directions, and a relatively smaller proportion of well-formed gland tubules. There was practically no lymphadenoid stroma around the epithelium and,

FIG. 3.

Adenoma uteri diffusum benignum. (Mr. F. B. Jessett's case.)

save for the intervention of a few connective tissue fibres at parts, it rested directly on the muscle. The epithelial cells were cylindrical and their nuclei lay close to the basement membrane. There was a tendency to intraglandular plication so that the contour towards the lumen was a wavy circular line. The fibrous tissue and muscular stroma followed these indentations. There was no round cell infiltration anywhere observable. The muscular stratum under the serosa was free from gland canals.

CASE 3.—For permission to make use of this specimen we are indebted to Professor Murdoch Cameron and Dr. Alexander McLennan. It was removed from the anterior lip of the cervix by Professor Murdoch Cameron who described the appearance of the tumour at the time of its removal as resembling very closely a multilocular cyst. The patient had all the symptoms which are found in association with intrauterine polypi. The tumour attained the dimensions of a cocoanut and on examination it was exceedingly like a multilocular ovarian cyst, the superficial parts of the tumour being raised into irregular masses by cystic cavities in the growth varying from the size of an orange to very minute glandular spaces. The covering of these cysts was very thin, while the portions intervening were of firm consistency. On section it was found to be composed for the most part of cavities which contained mucus and here and there free communication existed between neighbouring spaces. The fluid on boiling did not coagulate. These spaces were separated by tissue which to the naked eye seemed to be fibromyomatous and in a somewhat œdematous condition and on microscopic examination these portions were found to be in a degenerated condition, the stain being faintly taken up. The cystic spaces were found to be singularly beautiful in the perfection of their structure, resembling very closely the microscopic characters of an ovarian cystadenoma. The glandular spaces were lined by a perfectly uniform row of columnar epithelium which had an intact basement membrane resting directly on the surrounding fibro-muscular tissue. At the base of each cell there was a single nucleus which took up the stain readily. In many of the spaces well-marked papillomatous projections existed which extended in the more marked papillæ almost to the opposite wall of the cavity, a strand of fibro-muscular tissue following the epithelium into the lumen. Such was the degree of projection at certain portions that the apices of adjacent papillæ met and the epithelium at the point of contact disappeared, so that a space was thus formed in a secondary manner from these two papillæ. This space resembled the original glandular formations in every respect. The formation of such an adenomatous structure is exactly analogous to that which is found in the tubes in certain cases of salpingitis. In other spaces the projections were extremely small, so that the lining epithelium had simply a number of small undulations next the lumen. In some of the larger cavities where cystic distension had been very great the epithelium had completely disappeared and here and there a few flattened cells represented what was once a well-defined cylindrical epithelium. In such spaces the fibro-muscular tissue formed for the greater part the limits of the cavity. A cervical adenomyomatous polyp of such dimensions as the above must be of very rare occurrence (Fig. 4).

FIG. 4.

Section of a cervical adenomyomatous polypus showing subdivision of gland spaces.

CASE 4.—The patient was aged 39 years, married, and the mother of four children. She had been delicate in childhood. Menstruation had started at 14 years of age. She had always been regular save for the intermissions of pregnancy but the periods had always been of long duration, nine days on the average and fairly copious. She was blonde and pale. Lately, the onset of the period had been accompanied by severe pain referred to the lower part of the abdomen and there had been severe hæmorrhage at and between the periods. The uterus was not felt to be enlarged bimanually but painful under the examining hand on the fundus. The ovaries appeared to be normal and were not painful; the tubes were normal. Bimanually, with one finger in the rectum, the fundus uteri towards the left was excessively tender. There was no bladder trouble. The patient was of a constipated habit and required to keep the bowels loose by medicine to obviate pain on defecation. Laparotomy was performed and the uterus was removed. The uterus was normal in size but on the fundal angle just behind the uterine junction of the left tube there was a slightly raised flat whitish circular patch under the intact peritoneum. In cutting into it it was hard to the knife, almost regularly hemispherical, and approached the cavity on its inner convexity. It was of about the size of a half walnut. It was circumscribed by normal uterine tissue. It appeared to be a fibromyoma and its true nature was only discovered after microscopic section; consequently we were not so careful as we might have been in the rough section and though serial sections were afterwards made in no case unfortunately was one obtained without muscular strands intervening between the endometrium and the tumour proper. Microscopically the tumour was composed of bundles of muscular tissue running

in various directions, inclosing and separating from each other, many well-formed circular, oval, or irregularly shaped gland acini. In the smaller tubules the epithelium was columnar, in the larger cubical, and each cell was occupied by a round or oval nucleus. The epithelium, too, at various parts of the tumour was ciliated (Fig. 1). At some parts there was a fair amount of lymphadenoid stroma between the acini and the muscle, at others the epithelium abutted directly on the muscle. Seldom were two sections of gland tubules found in the same islet. The blood-vessels were fairly numerous and had hypertrophied walls. Gland cells existed quite close to the serous coat. The endometrium was apparently normal.

Several theories of origin have been put forward. The inevitable microbic origin has received the support of some French observers mainly on the slender ground of occasional leucocytosis. Cullen has described the presence of giant cells but no tubercle bacilli have been found. Eschoff considers that the peritoneum covering a myoma may dip into it, be cut off, and by proliferation form the adenomatous constituent. This view presupposes the probability of metaplasia of endothelium into epithelium. It has received no independent support. Most continental and American observers refer the tumour to mucosal origin. Von Recklinghausen [5] was strongly of opinion that uterine adenomyomata almost exclusively owed their origin to persistent remains of the Wolffian duct and of his 33 cases referred only one to a mucosal origin. In early fœtal life the Müllerian and mesonephric ducts lie in close proximity from the kidney to the urogenital sinus. Below, the Müllerian ducts coalesce to form the uterus and vagina; above, diverging, they form the Fallopian tubes; and it is at the uterine junction of the latter with the uterus that the Wolffian ducts lying dorsally come to have an intimate relation with the uterus. Persisting as rudimentary canals in ruminants and swine—Gärtner's canal—the Wolffian duct in the human adult has as a rule entirely disappeared except the terminal portion inclosed in the substance of the neck of the uterus and still distinguishable but only by means of cross sections as an extremely narrow tubule (Beigel, H. Dohrn). Rest cells derived from the Wolffian ducts have been found under the serosa, especially near the tubal angles, by Klein and others. Adenomyomata have been found over the course of the Wolffian ducts—in the Fallopian tubes, broad ligaments, and vagina. The glandular elements arising from the Wolffian remains in the uterus would stimulate a hyperplasia of the muscle and thus form the other element of the tumour. This explanation of von Recklinghausen would seem to account for subserous adenomyomata towards the uterine cornua posteriorly but it breaks down with regard to submucous adenomyomata, dorsal or ventral, or more or less generalised growths. The evident connexion between the endometrium and the glandular islets of the tumour and the identity of their component parts seen in so many cases make the mucosal origin of these practically certain, and even though no endometrial connexion is evident it is improbable that adenomyomata practically identical histologically could have two such very dissimilar modes of origin. Besides it is unlikely that perfectly formed tubules of such a highly specialised structure as ciliated epithelium could originate from embryonic remains, which have presumably long lain dormant, and the fact that cilia are present in a tumour which has intact peritoneum over it seems to point strongly to a connexion with the uterine cavity. The failure to establish an endometrial connexion in a microscopic preparation may be due to the fortune of the particular section and the connexion might be revealed by serial sections, but if even then it is not obtained a mucosal origin is not negatived, for by the growth of the muscular constituent the tumour might be insulated. The presence or absence of a lymphadenoid setting of the acini does not point either way, for in Case 4, where no endometrial connexion was determined by the sections, there was at parts more or less lymphadenoid stroma, and in Case 3—a polypoid growth—and in Case 2, where there was presumptive evidence of endometrial origin, there was practically none.

The association of adenocarcinoma with adenomyoma may be more than accidental. Beyea [6] considers that carcinoma of the uterine body may arise from adenomyoma. We are deeply indebted to Dr. Louise McIlroy of Glasgow for providing us with a section showing at one part typical adenocarcinoma with small round-cell infiltration, intraglandular inverting and extraglandular everting of closely packed distorted epithelial cells several layers thick and poor in nuclear staining, their basement membrane lost, and the interglandular stroma reduced to a minimum, and at another part

FIG. 5.

Section of a tumour showing typical adenomyomatous formation.

FIG. 6.

A different part of the same section showing adenocarcinoma.

[5] Die Adenomyome und Cystadenome der Uterus und Tubenwandung, 1896.

[6] Hektoen's and Riesman's Pathology, 1902.

perfectly formed gland tubules composed of a single row of columnar epithelial cells and the nuclei well stained, the basement membrane intact, the surrounding stroma of lymphadenoid tissue and the enveloping muscle—typical adenomyoma. Figs. 5 and 6 are reproduced from microphotographs from different parts of the same section. Fig. 6 seems to show the transition from adenomyoma to adenocarcinoma through the intermediary stage of malignant adenoma, the gland canals at that part being lined with a single row of cylindrical epithelium. We have searched several hospital and private collections of uterine tumours without coming across this condition.

To sum up, we would suggest the following as the stages of these tumour formations: first, an ingrowth of the structures of the endometrium into the muscular wall, as is seen in hypertrophic endometritis—the stage of "glandular inclusion"; second, a hyperplasia of the inclusions and a progressive infiltration stimulating a hyperplasia of the muscle—the stage of "adenomyoma benignum"; third, a loss of relations between glandular and muscular elements, the growth of the former outstripping that of the latter, inversion and eversion of the epithelium with a consequent displacement of the interglandular stroma and an encroachment on the muscle, the irritation of the growth causing the round-cell infiltration—the stage of "malignant adenoma"; and fourth, the stage of adenocarcinoma, the loss of relations between one epithelial cell and another, the riotous proliferation and heaping up of immature epithelial cells breaking through the restraining basement membrane, invading and destroying the adjacent muscle.

We have received much help from various friends in the way of specimens of uterine tumours and microscopic slides. We beg to thank Dr. Harold R. D. Spitta of St. George's Hospital for the excellent microphotographs which he has taken for us.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SIR JAMSETJEE JEEJHEBHOY HOSPITAL, BOMBAY.

A CASE OF OCULAR DEFECTS ASSOCIATED WITH CONGENITAL DEFORMITY OF THE CRANIUM (OXYCEPHALY).

(Under the care of Captain E. F. GORDON TUCKER, I.M.S.)

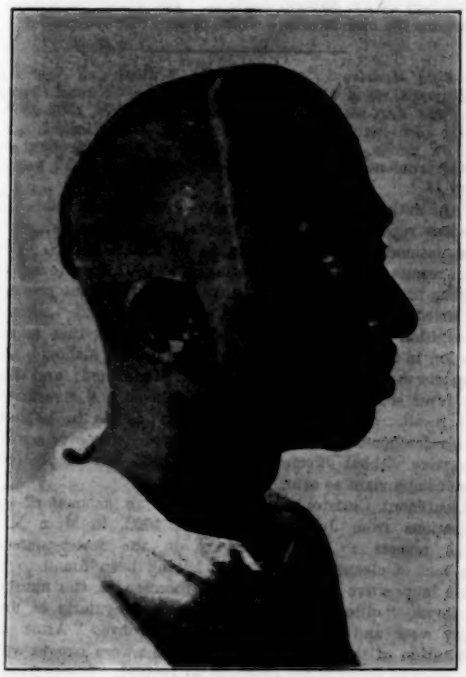
THE patient was admitted into the wards of Captain Tucker in the Sir Jamsetjee Jeejhebhoy Hospital early in September, 1903, for an attack of malarial fever which rapidly responded to treatment. The curious condition of the eyes was at once observed and examination of the cranium showed that the occipital region was very deficient and that the posterior part of the skull was almost on the same plane as the back of the neck. After his head had been shaved the "steeple-shaped" character of the cranial vault was evident. He was a Mahratta and stated that his age was about 20 years and that his eyes had always been prominent. His father was alive and in good health and had no peculiarity of the eyes or the face. His mother died about five years previously, apparently from phthisis; there were three sisters who died young and there was one brother living who had not ocular defect or peculiarity. The patient's work was to look after cattle. He answered questions intelligently; he gave no history of headaches and had always had good health. Vision for distant objects was good. He was of normal height, build, and development. The cranium showed a projection in the form of a ridge from the centre of the vertical portion of the frontal bone to the central point of the vault, which was situated one and a half inches in front of a line drawn perpendicularly upwards from the external auditory meatus. The marked bulging in the temporal regions present in the case of congenital proptosis associated with a curious formation of the cranium in a boy, aged seven years, who showed evidence of some mental deficiency, described by Mr. H. Work Dodd and Mr. W. H. McMullen in THE LANCET of June 13th, 1903, p. 1665, was not evident in this case. The shape of the face was natural. The nose was well formed. The palate was very high and arched and met at the uppermost part in a deep sulcus. The teeth were very good and not at all crowded together. The neck was of normal shape and there was no enlargement of the thyroid gland. Coördination of muscular movement was quite natural. The measurements of the head and face were as follows: horizontal circumference, 49½ centimetres; naso-occipital arch, 34 centimetres; binauricular arch, 34 centimetres; height of the orbits, 4½ centimetres; breadth of the orbits, 5 centimetres; transverse diameter (measured with callipers), 12·2 centimetres; antero-posterior diameter, 16·2 centimetres; suboccipito-frontal, 16·2 centimetres; distance between the two external angular processes, 11·4 centimetres; and height of the frontal bone, 11·8 centimetres. The cephalic index was therefore 75·3. Certain ridges on the cranium were well marked; the superior temporal line stood out along the whole side of the skull; the superior curved line of the occipital bone could be felt and the external occipital protuberance was of the size and shape of a marble. There were no definite parietal eminences. The internal condyle of each humerus was very prominent and this enlargement was symmetrical; the internal condyle of each femur was also large and there was the slightest possible amount of genu valgum. The proptosis could be well seen in the photographs (see illustrations). Quite two-thirds of the globe were in front of the orbital margin; a little pressure on each lid caused still more proptosis and pain; there was more proptosis in the right eye than the left and it could be moved laterally by the fingers but this was painful. Vision was good; there was no nystagmus. Hearing was good. There was external strabismus on both sides but the left eye was the most affected. The movement of the right eye, when acting alone, was impaired in the inward direction and slightly so in the upward direction. Similarly there was impaired movement with the left eye acting alone but the movements

FIG. 1.

Aspect of patient, front view.

of the left eye inwards were slightly more impaired than on the other side. When both eyes acted together the left eye did not follow an object moved towards the right and when the object was to the left the right eye did not move beyond the median line. Bilateral movement of the eyes downwards was normal but on looking upwards movement of the left

FIG. 2.



Aspect of patient, side view. The white line marks out the coronal suture.

eye was deficient and it went outwards. Major Dyson, I.M.S., kindly examined the eyes and found the discs to be normal but the veins to be somewhat tortuous; the patient was hypermetropic (2·5).

Remarks by Captain TUCKER.—Mr. Dodd and Mr. McMullen in their description of an interesting case referred to above state that "cases of cranial deformity associated with ocular defects form an interesting group. Such cases are rare but the ocular defects observed in them are so constant that it appears highly probable that these defects are dependent on, or at any rate are closely related to, the deformity of the skull. The variety of cranial deformity most commonly found in these cases is oxycephaly." The case which is described above is an interesting example of this type of cranium and the proptosis and external strabismus give the patient a curious and noticeable physiognomy. But it differs from the case described by Mr. Dodd and Mr. McMullen in showing no appreciable mental defects and in slightly less cranial deformity. The cause of the early obliteration of the lambdoid suture which produced the exaggerated growth in the vertical direction is quite obscure and rickets is discarded by the authorities in the consideration of the etiology, but in this case the existence of the exostoses in the position of the external occipital protuberance and the humeral condyles and the slight genu valgum are points of interest.

POPLAR AND STEPNEY SICK ASYLUM DISTRICT.—The report of the managers of this district for the year which ended on Lady-day, 1904, shows that in the various institutions of which they have control there were 921 patients, as compared with 896 last year. The analysis of diseases shows that bronchitis, heart troubles, rheumatism, and ulcers are greatly in excess of other affections. There was one case of Hodgkin's disease in the Bromley Asylum.

Medical Societies.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on June 21st, Dr. H. Angus, the President, being in the chair.—Dr. T. M. Legge, H.M. Medical Inspector of Factories, read a paper on Sclavo's Serum Treatment of Anthrax in Man. Dr. Legge stated that his attention was first called to the work of Dr. Sclavo in a letter he received in January last from Mr. A. Webb, horsehair manufacturer, of Worcester, who had heard of the efficacy of the serum in industrial cases of anthrax which had occurred among workers in horsehair factories in Milan. Dr. Legge had since received, through the kindness of Dr. Sclavo, professor of hygiene in the University of Sienna, some 60 tubes of the serum, but before venturing to bring the matter before the society and asking the members to use the serum he had endeavoured to sift the evidence on which treatment by its means was based. Evidence as to the possibility that passive immunity might be conferred on man had been obtained as the result of Sobernheim's analogous experiments in the case of sheep.[1] Sobernheim found that by adopting the method (originally acted on by Dr. Sclavo) of combined active and passive immunising treatment (simultaneous inoculation of serum and virus) he was able to produce a high degree of active immunity in sheep and that the serum of such animals contained specific protective bodies against anthrax. Supported by the Chamber of Agriculture of Saxony he had tested and proved the success of the method on 2700 cattle in anthrax infected districts. As soon as the inoculations were commenced further outbreaks of the disease ceased to arise. Already in 1895 Dr. Sclavo had been able to show (1) that sheep brought to a high degree of active immunity could furnish a serum active against anthrax, and (2) that this serum showed prophylactic and curative powers against anthrax in rabbits. In order to obtain a more powerful serum he instituted comparison of the efficacy of the serum obtained from the sheep, the goat, the horse, the ass, and the ox. It was from the ass that he obtained the most powerful serum and in a recent communication to him (Dr. Legge) Dr. Sclavo still regarded the ass as the most suitable animal from which to obtain anti-anthrax serum. In view of the experimental results showing the curative power of the serum and its innocuousness when injected in large doses into animals Dr. Sclavo turned his attention to the treatment of external anthrax in man and the first case was treated by means of the serum in June, 1897. In a paper[2] dated 1903 Dr. Sclavo gave details as to age, occupation, situation of pustule, medical practitioner treating, verification and result of 158 out of 164 cases, all which had been treated with the serum up to the time of reporting. The fatality in these 164 cases was 6·09 per cent. as compared with 24 per cent. for the figures published for the whole of Italy and 26 per cent. for 211 cases of industrial anthrax reported to the chief inspector of factories in the years 1899–1903. The figures were very far, he thought, from giving an accurate idea of the therapeutic value of the serum. In several instances the treatment was not tried until all hope from every other form had been given up. Even in some of the fatal cases extraordinary improvement for a time occurred. The conclusions which Dr. Sclavo drew from his work in consideration of the results hitherto obtained were that: (1) the serum was innocuous even in large doses; (2) it could be well borne even when introduced into the veins; (3) no case taken in an early stage and of moderate severity would be fatal if treated with the serum; (4) by its means some cases might be saved when the condition was most critical (he narrated one case in which a woman recovered after bacilli were found both in the blood and urine and another in which they were present in the urine); (5) when injected into the veins it quickly arrested the extension of the œdematous process so as to reduce notably the danger of suffocation which was present in many cases when the pustule was situated on the face or the neck; (6) if used early enough it reduced to a minimum destruction of the tissues when the pustule was localised and thus diminished risk of deformity; and (7) persons attacked appeared to become convalescent almost at once. The dose of serum recommended

[1] Zeitschrift für Hygiene, vols. xxv. and xxxi., and Berliner Klinische Wochenschrift. No. 22. 1902.

[2] Sullo Stato Presente della Seroterapie (Anticarbonchiosa).

in ordinary cases was 30 to 40 cubic centimetres subdivided into three or four injections subcutaneously into different parts of the abdomen and followed in 24 hours if there had been no improvement by further injections of from 20 to 30 cubic centimetres. In every grave case he recommended endovenous injection, preferably into one of the superficial veins on the back of the hand, of ten cubic centimetres followed in an hour or two where no improvement was shown by another similar dose.—Dr. J. H. Bell, Dr. H. J. Campbell, and Mr. W. H. Horrocks made remarks on the paper and Dr. Legge replied.—Mr. C. F. M Althorp showed specimens of Ovarian Tumours.

Reviews and Notices of Books.

Progressive Medicine. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital. Vols. I. and II., 1903. London: Rebman, Limited. Vol. I., pp. 450; Vol. II., pp. 437. Price 15*s.* per volume.

As our readers are probably aware this publication consists of a quarterly digest of advances, discoveries, and improvements in the medical and surgical sciences. Vol. I. contains six contributions. The first is by Dr. C. H. Frazier on the Surgery of the Head, Neck, and Chest. Some interesting remarks are made on operative procedures in cases in which the heart has been wounded. The results obtained from several sources clearly show that there is a larger percentage of recoveries after operation than when only palliative treatment has been adopted. The surgical treatment of pulmonary tuberculosis is also commented on, but the general trend of opinion seems to be that up to the present operative interference has not met with much success. The next article is headed Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza, and is written by Dr. J. B. Herrick. The value of the antitoxin treatment of diphtheria is discussed. Although the vast majority of practitioners are convinced of the good results obtained by means of the antitoxin there still appear to be some sceptics who maintain that the whole question is yet unsettled. Hueppe, for instance, at a meeting of the Prague Medical Society, argued that the benefit arises from the fact that when the serum is used the physician feels that he has done his best and therefore lets the harmful local treatment alone. That this opinion does not represent that of the Prague school is shown by the vigorous defence of antitoxins by Ganghofner, Epstein, Salus, Langer, and others. Dr. F. M. Crandall writes on Diseases of Children and makes some interesting observations on the morbid conditions affecting the newly born infant and he also gives a *résumé* of the contributions which have appeared on infant feeding. The section on Pathology has been intrusted to the able hands of Dr. Ludvig Hektoen. Amongst other matters he gives a good summary of recent investigations in regard to cytotoxins, agglutinins, and precipitins. The recent advances in laryngology and rhinology are considered by Dr. A. Logan Turner, and those in otology by Dr. R. L. Randolph.

Vol. II. commences with an article on the Surgery of the Abdomen, including Hernia, by Dr. W. B. Coley, who considers that there is a strong tendency on the part of operators to combine the distinctive features of a number of operations for hernia into a single operation which, they reason, must give better results than any of the methods if carried out as originally proposed. The review of advances in gynæcology is written by Dr. J. G. Clark who gives an extensive digest of the latest papers upon all phases of cancer of the uterus. He considers that this is the one gynæcological disease which has resisted all forms of treatment and "stands as a reproach to the abdominal surgeon." His remarks upon inflammatory affections of the pelvic viscera are also worthy of note. Dr. Alfred Stengel gives an account of the work which has been accomplished in reference to diseases of the blood and ductless glands, the hæmorrhagic diseases, and metabolic diseases. Under this heading are included observations on diabetes, gout, myxœdema, exophthalmic goitre, and Addison's disease. The last contribution in this volume is on Ophthalmology by Dr. Edward Jackson. The whole publication maintains the high standard which always characterised it.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. Second Report of the Anti-malarial Operations at Mian Mir, 1901–1903. By Lieutenant S. R. CHRISTOPHERS, M.B. Vict., I.M.S. New Series, No. 9. India: Office of Superintendent of Government Printing. 1904. Pp. 37. Price 10 annas or 1*s.*

THE author of this monograph first briefly refers to previous reports on the same subject by the Royal Society's Commissioners and by Captain S. P. James, I.M.S. The main results of the work undertaken in 1902 were found to be that the cleaning of the banks in itself did not prevent the breeding of anopheles in the watercourses and "oiling" in addition with kerosene was found necessary; that no reduction in the *anopheles Rossii* was noticeable, although the *anopheles culicifacies* was to an extent diminished; and that the fever season in the bazaar was delayed and shortened. The results obtained also by Captain James in 1902–03 with reference to the destruction of anopheletes over a wide area were without effect, for in May, 1903, the anopheletes were as abundant as ever.

Lieutenant Christophers then details an account of his operations from July to November, 1903, in Mian Mir. With respect to the operations on the water-courses, the fact of cleansing their sides having been found to be quite inoperative in stopping the increase in the number of larvæ, "oiling" was had recourse to regularly, at first every week and later at intervals of 12 days. After the institution of this regular oiling nymphæ were caught with the greatest rarity in the channels so treated. It was found, however, that unless the vegetation fringing the watercourses was first removed "oiling" was rendered impracticable. In order to reduce the cost the experiment of emulsifying the oil with soap solution was tried, with the result that a more perfect film was produced and its effectiveness was almost doubled. These experiments in the laboratory did not, however, coincide with their use in the canals where the pure oil was found to be somewhat more effective. The author then proceeds to note the results obtained on miscellaneous breeding places by drainage and the filling up of pits and sheets of water around the barracks, bazaars, and bungalows within the area experimented upon. He found that in spite of these measures a good many breeding places were left which had to be searched for and removed, such as the water in small cement tanks, kerosene tins, and earthenware water-pots. These were dealt with once a week. Lieutenant Christophers, however, holds them to be of little comparative importance. The operations directed against rain-formed pools are next narrated. These consisted in superficial drainage, filling with earth, baling out, and "oiling"; on the whole, surface drainage was found to be the most effective and satisfactory of all operations.

In Part III. the results are detailed. It was found that the number of larvæ in the area experimented upon showed no tendency to diminish in spite of repeated wholesale destruction and that with reference to the diminution of the common anopheletes in Mian Mir none perceptibly occurred as regards the *anopheles Rossii*, whilst it was difficult to come to a conclusion respecting the *anopheles culicifacies*. The result of Lieutenant Christophers's experiments in regard to the effect of anti-culicidal measures against anopheletes is

thus in direct variance with hitherto recorded results." With regard to the effect on malaria, he found the onset of the fever season to be postponed but that after the first two months no effect was apparent.

In Part IV. certain points in the biology of mosquitoes are detailed, such as were found in connexion with the swarming of certain species; with their flight, it being found that at Mian Mir they traversed three-quarters of a mile to reach an abundant food-supply; with the spread of adult anopheletes; with the time of pupation and hatching; and with the effect of heavy rain and of desiccation on anopheles larvæ.

In Part V. the question of treatment by quinine is dealt with. A very distinct reduction in malaria followed its administration where the latter was strict, but the author does not hold that as a routine practice it is of much value owing to the difficulties in its employment. When given to native children, however, its effect upon the prevalence of enlargement of the spleen was very distinct.

Lieutenant Christophers thus shows his conclusions to be in close accordance with those arrived at by Captain James in the first report. He holds that "gradual but permanent improvement in the health of stations by well-directed sanitary reforms, wherever these can be carried out, will in the end yield the best results."

The Prevention of Disease in Armies in the Field. By ROBERT CALDWELL, F.R.C.S. Eng., D.P.H. R.C.P.S. Edin. & Glasg., Major R.A.M.C. London: Baillière, Tindall, and Cox. Pp. 182.

WE welcome this excellent work. There are not many such books on this important subject nor are there many characterised by the conveyance of so much valuable matter in so brief and portable a compass as has been contrived by the author. It embraces the outcome of his experience in Egypt and South Africa. Enteric fever is first treated. Major Caldwell's earliest experience of this disease in an epidemic form was at Korosko in 1885 and 1886. He had previously left this camp in July, 1885, with a clean bill of health as regards enteric fever but on his return there in the succeeding winter he found that the disease had developed during the winter months to a most serious extent. To account for the epidemic the author concludes that the bacillus typhosus arose by transformation of the colon bacillus which then found a suitable medium in the basic nitrates and residue of unreduced organic matter in the sandy soil and was subsequently disseminated by means of dust and of flies. No enteric fever was found previously in the neighbouring villages of the fellaheen nor would it appear to have been water-borne. Again, in regard to South Africa Major Caldwell, who served in the Ladysmith relief column, holds that the enteric fever therein arising was due to the polluted soil surroundings, the enteric bacillus being swallowed with the dust, the food, or the water.

With regard to dysentery the author points out that although this disease may not appear so promptly as enteric fever consequent on pollution of the soil, yet when once it has appeared it will persist much longer. He holds that the essential cause owes its origin to some pre-existing organism in the alimentary canal and that then after attacking its own host it is voided in the fæces, from which the next victim is attacked. He also draws attention to the probably acquired infection developed from primary diarrhœa, an observation fully according with the experience gained in Afghanistan in 1878-80. The various conditions associated with diarrhœa are next detailed, as to its origin from food, water, dyspepsia, chill, and a probable specific organism. The facts relating to various other diseases—e.g., simple continued fever, dyspepsia, contagious ophthalmia, pneumonia, dengue, and malaria—conclude this portion of the work.

Administrative matters affecting the health of troops in the field form the next subject for discussion. The bell tent is deservedly condemned; there is no ventilation worthy of the name and when the "flies" are down and the door is laced up the interior, as the author remarks, suggests that of a fœtid oven. It is also a most inefficient protector against heat or cold and by excluding the sunlight the bactericidal powers of the sun are lost. The author draws attention also to the spread of infection by blankets, by clothing, and by stretchers; with regard to the last-named an admirable adjustable waterproof cover, invented by him to prevent such contamination, is figured. The danger of aerated waters owing to previous defilement in some way or other of the bottles is pointed out and the objection to prolonged occupation of the same camping grounds is also alluded to.

The author next treats of sanitary measures in the field; he shows how important a matter is the inspection of men as to their fitness to serve at the front. At the outbreak of war it is natural that our countrymen should be anxious to serve and so during the Boer war the reservists constantly concealed the existence of ailments from the eyes of the civilian practitioners and were thus passed although hopelessly unfit for the fatigues of a campaign. The necessity of avoiding camping grounds in localities swarming with flies is insisted on. Next follow considerations how to guard against soil pollution in connexion with tents, latrines, and camp refuse, and in regard to this part of the subject it may be mentioned that the author has himself devised a very efficient camp and refuse destructor. In the disposal of the excreta of patients in field hospitals it must be remembered, as the author states, that it is necessary to sterilise the excreta of enteric fever patients beforehand. Firth and Horrocks have shown that the enteric bacillus can survive 74 days in moist soil. This, however, must always be a source of difficulty in a mobile camp. Hence all serious cases of illness must be at once removed from the fighting line. In his field hospital the author ordered all vessels for the reception of the excreta to contain a 10 per cent. solution of carbolic acid. He, however, expresses the doubt whether the germicidal fluid ever came into sufficiently intimate contact with these excreta. As it is laid down that the germicide should be intimately mixed with the excreta for an hour before burial by the authorities we certainly share his doubt.

The book deals with many other subjects on which limits of space forbid us to dilate, such as diet, marches, clothing, medical inspection, and the prevention of malaria and parasitic diseases. In conclusion, we congratulate the author on the production of a work which every officer of the Royal Army Medical Corps should possess.

Tuberculosis. By NORMAN BRIDGE, A.M., M.D., Emeritus Professor of Medicine in Rush Medical College. London, Philadelphia, and New York: W. B. Saunders and Co. 1903. Pp. 302. Price 6s.

THE substance of the lectures on "Medical Tuberculosis" delivered by the author in Rush Medical College during the past three years is embodied in this work. The book is divided into 18 chapters and a fairly satisfactory account is given of pulmonary and laryngeal tuberculosis. Dr. Bridge is more successful in the clinical description than when considering the etiology and pathology of the disease. Some of his statements can scarcely be taken as accurate. For instance, in speaking of the bacillus tuberculosis he says: "In different atmospheres the number of organisms inhaled by an adult person varies from probably half a dozen to several hundred every minute of life." Man is probably naturally immune to tuberculosis but the resistance of the human species would have to be very strong to overcome such inroads as are here suggested.

Again, we cannot agree with the following statement and explanation: "A patient will often make a sudden slight improvement after a moderate hæmorrhage. We were at a loss to understand why this was so until it was discovered that the blood outside the vessels has a power more destructive to microbes than that inside. ..... It is true that it [the blood] also washes away some of the products of the disease and helps to get them out of the body, which is useful so far as it goes." The author's views, too, on the formation of fibrous tissue in a tuberculous lung are also rather vague. "It is my belief that fibrosis is incited to some degree by the motion of the lung: the greater the motion and violence from the respiration the greater the fibrosis; the more quiet the lung, the less of this process." The chapters on the Symptoms, Physical Signs, and Diagnosis of Tuberculosis are, on the other hand, well worthy of study. They exhibit a thorough knowledge of the disease from a clinical standpoint and many hints are given which will be found of value in actual practice. Dr. Bridge constantly associates the physical signs with pathological conditions, which is the correct way of obtaining a true picture of the course of the disease. His remarks on treatment are also interesting and his directions as to diet may be followed with advantage. He lays due stress on the prophylaxis of tuberculosis and he points out the educational advantages of sanatoriums in teaching patients affected with the disease how they can to a great extent prevent the spread of the malady.

Lectures on Clinical Psychiatry. By Dr. EMIL KRAEPELIN, Professor of Psychiatry in the University of Munich. Authorised translation from the German, revised and edited by THOMAS JOHNSTONE, M.D. Edin., M.R.C.P. Lond. London: Baillière, Tindall, and Cox. 1904. Pp. viii.—308. Price 10*s.* 6*d.* net.

No apology is needed for the reproduction in English of any part of Professor Kraepelin's works on psychiatry. His classical "Lehrbuch der Psychiatrie," which embodies the soundest and most advanced knowledge of the day in psychological medicine and of which a new German edition in two volumes has just been issued (1904), constitutes the high-water mark of science in this direction and must be regarded as indispensable for all alienists and students of mental disease. The present volume of clinical lectures is different in that it consists of a series of lessons mainly clinical and descriptive of the various types of insanity, eminently practical in character, and taking but little account of metaphysics and anatomical pathology. The introductory lecture on melancholia is followed by others in which the maniacal-depressive insanities and adolescent insanity are discussed. Then follow other lectures dealing with states of depression in general paralysis, epileptic insanity, maniacal excitement, katatonic insanity, the megalomania of general paralysis, and alcoholic insanity. Next, by a natural transition, the toxic group of insanities is taken up and the insanities which follow acute (infectious) diseases, the varieties of mental delirium, and puerperal insanity are described at some length. The fifteenth and sixteenth lectures deal with the predominantly delusional forms of insanity of the young—paranoia and paranoid dementia præcox—which at the present day are attracting much attention, and many interesting facts and data are brought together in these chapters with regard to these affections. The concluding half of the book is occupied with such subjects as the different forms of insane delusions, chronic alcoholic insanity, morphinism and cocainism, the final stages of general paralysis and of dementia præcox, imbecility from coarse cerebral lesions, epileptic imbecility, senile insanity, traumatic insanity (following head injuries), idiocy, imbecility and cretinism, and the psychoses which lie on the borderland of insanity—hysteria major, the insanity of obsessions and morbid impulses, and criminal and other morbid (including sexual) perversions of personality. In the course of 29 lectures Professor Kraepelin has given us within the compass of a moderately sized volume a series of instructive studies and clinical pictures of the various forms of insanity which for interest, information, philosophic insight, masterly grasp of the subject, and clearness of exposition will rank with the famous lectures of Charcot and will probably long remain unsurpassed in psychiatric medicine.

Intestinal Parasites as Factors in the Mortality of Prisoners in Cannanore and Rajahmundry Jails. By C. F. FEARNSIDE, M.A., M.B. Aberd., Major I.M.S. Reprinted from the *Indian Medical Gazette*, vol. xxxix. (No. 4, April, 1904). Pp. 35, with clinical chart.

THE object of this pamphlet is to draw attention to the prevalence of the ascaris lumbricoides on the west coast of India as shown by experience in the Cannanore Jail. The health of the prisoners there has been unsatisfactory for many years; the total death-rate has been uniformly high and that from bowel affections has generally been considerable. Only during the last three years included in the series of observations has there been a steady reduction in the mortality generally and especially in that due to bowel complaints. The reduction is believed to be due to the recognition of the fact that the ascaris lumbricoidet is excessively prevalent in this part of India and thas to its presence may be traced many of the diseases which have caused mortality in previous years. A post-mortem examination on a case of diarrhœa with anæmia and dropsy revealed 37 worms at the ileo-cæcal valve and it occurred to the author that they were the cause of the intractable character of the case. Acting on this idea regular resort was had to anthelmintics in the treatment both of prisoners and of prison subordinates, with the result that the number of cases of dysentery was reduced from 144 in 1892 to 10 in 1896, the number of cases of muco-enteritis from 77 in 1892 to nine in 1896, and that of diarrhœa from 79 to one. The prevalence of the parasite on the west coast is doubtless due to the damp climate of Malabar. Other worms which are very common on the coast are filaria sanguinis hominis, oxyuris vermicularis, tricohcephalus dispar, and the ankylostoma duodenale. Man is not the only host in this district infested with these parasites; in the crow and other birds tapeworms and ascarides are very common. Major Fearnside draws attention to the great importance of the presence of the ankylostomata in malarial or other cachexias. He says that they bleed patients who can ill afford to lose the blood and set up local congestions and erosions of the bowel which cause a catarrh and thus retard the proper assimilation of the food and recovery. It is this secondary effect of the presence of the ankylostoma that he looks upon as most injurious. The pamphlet is an interesting one; but why has Major Fearnside not published his observations earlier? The death-rates of the Cannamore Jail are quoted from 1881 to 1896.

THE CREMATION SOCIETY OF ENGLAND.—No. XVII. of the Transactions of this society has just been published and naturally contains a reference to the death of the late Sir Henry Thompson, Bart., one of the founders of the society and its president from its inception 30 years ago. During the year 1903 143 cremations took place at Woking, a number considerably less than in previous years, but it should be noted that the Golder's Green crematorium commenced operations at the close of the year 1902 and was, therefore, in competition with the Woking crematorium during the year 1903. The total number of cremations which have taken place at Woking to the end of 1903 is 2515. Notwithstanding the decrease in the number of cremations carried out at Woking during the past year the receipts were slightly more than the expenses of the society.

THE LANCET.

LONDON: SATURDAY, JULY 9, 1904.

What Constitutes Live Birth?

AMONG the most important cases in which medical evidence is put forward in courts of law are those where the issue depends upon the answer to the question, "Was the child born alive or not?" This importance may arise in the case of the mother of a dead child who is being tried upon the capital charge owing to her having been alone when the child was born and from medical evidence being consequently the only evidence obtainable as to the fact of life; in civil cases it may be due to there being rights to property depending upon the result. In the cases which arise in the civil courts and which are of far less common occurrence than the criminal trials there are more frequently witnesses as to the details of the birth other than medical men, but these are likely to be under the influence of sympathy with one side or the other, so that the weight of impartiality is added to the scientific value of the medical evidence. In these circumstances it is a matter for some regret that neither the legislature nor the judicial bench has ever laid down an authoritative definition of live birth for the purpose of legal proceedings. The recently constituted Central Midwives Board in framing rules for the guidance of midwives in cases of stillbirth had to supply them with a definition collated from the summing-up of various judges. There was no other course open to them. Yet the question is one of no less importance than that of mental responsibility which the House of Lords discussed in M'NAUGHTON'S case and upon which they called together the judges to advise them. For the guidance of midwives who are to notify stillbirths to the local supervising authority the Central Midwives Board has laid down that "a child is deemed to be stillborn when it has not breathed or shown any sign of life after being completely born," and as the board's rules have been approved by the Privy Council this may be said to be an authorised, if not a legal, definition of stillbirth as opposed to live birth.

Dr. STANLEY B. ATKINSON, a medical man who has been called to the bar, contributed an exhaustive article entitled "Life, Birth, and Live Birth" to the April number of the *Law Quarterly* which has been reprinted in the form of a pamphlet. This article contains a variety of dicta from the summings-up of judges in cases where questions of birth have been discussed from various points of view and the diverse opinions thus collected for comparison show how difficult it is to arrive at a just conclusion in such a matter. An important part of the task set is to draw a line at some point in the often protracted period of parturition the crossing of which must be accomplished before the new human being can be deemed to have entered the world. Until he has crossed that line he is neither to possess property nor to have a life the wilful taking away of which can be charged as murder, and yet before he has crossed it, wherever it is fixed, he will still have been physiologically alive and his life will have been such that he could have been deprived of it by the act of others. With regard to this vexed question as to when the life of a human being, as such, is to be deemed to begin it will be seen from the numerous cases cited by Dr. ATKINSON that judges, whatever they may hold to be the law, do not always approve the view that "complete birth" is necessary in order to constitute a live child. "Complete birth" implies that the child is entirely external to the mother but it is not necessary to "complete birth" that the placenta should have come away or that the umbilical cord should have been severed. Fortunately, the women who after giving birth to children conceal or destroy them do not study the law and are usually not in a condition deliberately to evade it, otherwise dangerous results might follow from their realising that the killing of the child when still partly in the mother's body could not be charged as murder. That this, however, would be in consonance with the accepted view of the law is well known. Professor MEYMOTT TIDY, among scientific writers, called attention to it in his work on "Legal Medicine," citing a case occurring in 1841 in which an accused person, who had cut off the head of a child that was in process of being born, was acquitted of murder. Among the cases cited by Dr. ATKINSON in which judges have expressed doubt or disapproval as to such a theory of separate existence is one in which Mr. Justice WILLS, a judge of great experience, characterised it as "very unsatisfactory" and as "enabling women to escape punishment on account of a pure technicality which is contrary to medical knowledge on this point." Mr. Justice WRIGHT on another occasion seems to have told a jury that "the true test of separate existence in the theory of the law, whatever it may be in medical science, is the answer to the question whether the child was carrying on its being without the help of the mother's circulation. If 'Yes,' then it had a separate existence even though it might not be fully born. If 'No,' it had no such separate legal existence." In that case the jury acquitted the prisoner, so that no question could be raised as to whether the definition formulated for their guidance was to be regarded as of universal acceptance or not.

It is not, however, only the moment at which life as a human being begins which is not satisfactorily defined, but the "signs of life," the presence or absence of which are to be taken as proof of its existence, require definition also. With regard to this Dr. ATKINSON observes: "Many judicial statements may be cited as to the nature of the test of the consummation of live birth. Repeatedly is the proof of either 'existence' or 'circulation' insisted upon, seldom is that condition defined, even parenthetically." It is a matter of some importance for medical men that they should know in studying medical jurisprudence or in qualifying to give evidence in a case in which their testimony is required where the line between existence and non-existence as a human being is to be drawn. It is also of importance for them that they should know what faint traces of the performance of functions associated with life are to be deemed proof that "life" was once present. It

may be observed that trials of the kind indicated must always present great difficulties of fact to judges and still more to juries, whatever advantage may be derived from a clear statement of the law. They are cases in which, of all others, the presence of the medical assessor would be of advantage to the judge and the 12 men whose combined opinion now decides so many weighty and abstruse questions.

The Fairs at Wigan.

THE ancient borough of Wigan, in Lancashire, is apparently to be congratulated on the possession of an institution, or organisation, or whatever it may most appropriately be called, which might with great advantage be introduced into many other localities. Its official style is "The Wigan and District Ratepayers' Emergency Association" and its business seems to be mainly that of subjecting the municipal authorities to the steady pressure of local public opinion in order at once to encourage them in well-doing and to restrain them from undertakings not likely to be beneficial to their constituents. A recent example of the useful activity of the association has been furnished by a letter which it has addressed to the mayor of Wigan, embodying a resolution to the effect that there is no longer any need for the Wigan fairs which have hitherto been held twice annually, in May and in October, and declaring that these fairs, in the opinion alike of the association and of the majority of the townspeople and ratepayers, are detrimental to the best interests of the town and to the health of the inhabitants. It is pointed out that since its inclusion in the list of "large towns," the death-rates of which are tabulated weekly and published by the Registrar-General, Wigan has gained an unenviable notoriety by reason of its high mortality and the association considers the fairs to be very objectionable on sanitary grounds, to say nothing of the question from the standpoint of public morality. The association therefore expresses its hope that the mayor and council of the borough will see their way to terminate the evils complained of by abolishing the fairs and by thus putting an end to the disorders which they occasion. The power of actual abolition is, we believe, vested only in the Home Secretary, but there can be no doubt that this power would at once be exercised if sufficient ground were shown by the local authorities.

It is, of course, more than probable that the representations thus made by the association are entirely justified by the facts of the case, inasmuch as fairs which have survived the circumstances first calling for their establishment have always displayed a tendency to degenerate into nuisances of a very grave description. As originally founded, they were of great public convenience by collecting together, at times when roads were bad and when travelling was difficult or dangerous, large numbers of the buyers and sellers of various commodities and, still more frequently, by affording facilities for the wide distribution of the products of local industries. Even in quite recent times, for example, the once famous "Goose Fair" of Nottingham was a very important mart for cheeses of the Stilton type, which were thence carried into all the northern parts of the kingdom, and other great fairs have fulfilled similar purposes with regard to other commodities. At one time the supply of Scottish cattle to the south was largely dependent upon the drovers and dealers who went in large numbers to the great fair at St. Faith's, near Norwich; Weyhill fair was the great centre of the south of England sheep trade; the fairs of Horncastle, of Howden, and of Woolbridge were the places at which young horses chiefly passed out of the hands of the breeders; and nearly all the Irish cattle destined for export changed hands at Ballinasloe. Fairs of this kind, with special objects of their own, survived most of those which were of merely local reputation, which had never fulfilled any more important purpose than that of the periodical gathering together of general commodities for the convenience of the inhabitants of the district, and which were deprived of their sole *raison d'être* by the uprising of numerous market towns, by the extension and improvement of roads, canals, and railways, and by the development of the general postal and commercial systems of the kingdom. The origins of the local fairs thus rendered superfluous were, in many cases, lost in the mists of remote antiquity; many, however, if not most of them, had been seized upon in feudal or mediæval times as a means by which profitable privileges could be conferred upon some individual, community, or corporation, to whom or to which certain tolls became thenceforward payable. Towns which had suffered during war were sometimes thus rewarded if the side which they had espoused were victorious, an example being the privilege of holding a free fair which was granted by EDWARD III. to the town of Burnley. Other fairs were held under the control of religious bodies and frequently became monopolies of the most rigorous and oppressive character. London shops were compulsorily closed during the days on which the Abbot of WESTMINSTER'S fair was open, and the Bishop of WINCHESTER was entitled to forbid the transaction of ordinary business in Winchester and in Southampton during the continuance of St. Giles's fair—a period which was extended from three days to 16 by a charter granted by HENRY III. It is fairly certain that powers of this kind committed to ecclesiastics would not be permitted to rust or to languish from disuse, and that fairs supported by such privileges must have entailed serious loss upon all the established or stationary traders in their vicinity.

The fair of greatest interest to the medical profession is undoubtedly the once famous Bartholomew's or "Bartlemy" fair, which, like St. Bartholomew's Hospital, was founded in Smithfield in 1133 by RAHERE, a monk who was described by STOW as "a pleasant witted gentleman" and who filled the not very monastic office of minstrel and jester to HENRY I. According to an account in the Cotton MSS., RAHERE "ofte hawnted the kyng's palice, and amo'ge the noyseful presse of that tumultuous courte, enforsed hymselfe with jolite and carnal suavite: ther yn spectaclis, yn metys, yn playes, and other courtely mokkys, and trifyllis intrudyng, he lede forth the besynesse of alle the day." RAHERE founded a monastery of which he was the original prior and concerning which there is a curious record of a free fight between the sub-prior and canons, on the one hand, and BONIFACE, Archbishop of Canterbury, and his followers on the other, with

reference to the Archbishop's claim to act as visitor. To this monastery, according to STOW, HENRY II. granted the privilege of a "faire to be kepte yeerly at Bartholomew-tide for three daies, to wit, the eve, the day, and the next morrow"; but, in course of time, the period became extended to as much as 14 days. In 1614, on account of the filthy state into which the soft ground was trampled by the great concourse of people, the City authorities spent £1600 in paving Smithfield; in spite of this improvement, NED WARD, in 1669, describes the fair as "ancle deep in filth and nastiness." The moral filth seems at least to have kept pace with the physical for, in 1703, at the close of a good deal of description in which agricultural implements are called by their shortest names, we read that "this is not an ark, like NOAH'S, which received the clean and unclean; only the unclean beasts enter this ark, and such as have the Devil's livery on their backs." By that time the fair had become an intolerable nuisance and many endeavours were made by the Lord Mayor and Aldermen first to shorten its duration and then to abolish it, but these were not entirely successful until 1855 when it came to its end. It was at one time the chief cloth fair of the kingdom but its period of usefulness covered only the first two or three centuries of its existence. Its history is analogous to that of all similar institutions, and the preamble of the Act 34 Vict. c. 12, by which fairs are now controlled, declared that many of those then existing were "both unnecessary and productive of grievous immorality." We trust that the representations of the Wigan Association may be favourably received alike by the borough authorities and by the Home Office.

The Literature of Scientific Papers.

WE received recently from the publishers an admirable little book by Professor T. CLIFFORD ALLBUTT, Regius Professor of Physic in the University of Cambridge, dealing with the literary composition of scientific papers,[1] and having read it carefully we wish that it could be made compulsory upon every member of the medical profession to do the same. In his preface Professor ALLBUTT points out that his book consists only of comments on the more frequent or more eminent defects of scientific essays, his experience being obtained by perusal, as a matter of duty, of some ninety or hundred theses, presented in the course of every year by candidates at the University of Cambridge for the degrees of Bachelor or Doctor of Medicine. He further states that his notes upon these defects are of an unsystematic and occasional character. The notes must be admitted, we suppose, to be of this casual sort, "for he himself has said it," but we should not have so described them; at any rate, despite the limitations indicated by the title of the book and by the author's verecundity, we have from his pen an excellent and suggestive tract upon the whole art of literary composition as applied to our language. We, like Professor ALLBUTT, have to peruse as a matter of duty a large number of scientific essays and we find that he has summarised, and well-nigh with completeness, within the compass of his 150 pages, the various faults of style, arrangement, and presentation that are most commonly to be found in the writings of medical authors. But he has done more than this. As a matter of fact, these same faults are to be discovered in the writings of all technical authors of the present day, whether their special engagement be in medicine, in law, in physics, or even in history. It is a notable fact that the scientific workers in all these departments of life, whose labour is and must be conducted with exactness, who deal with measurements of the smallest diameters and dates of the utmost precision, and whose whole working practice is a protest against inaccuracy, are as a class singularly inaccurate writers. Their dates and their measurements will stand scrutiny, but not the words in which they bring their facts to public knowledge. They know what they mean to say, but often they do not say it. At other times they say it, but in such an ambiguous and involved manner that the value of their teaching is discounted heavily. What Professor ALLBUTT has found in his experience of theses at the University of Cambridge, what we have found at the offices of THE LANCET, is illustrated in every technical paper in the United Kingdom, and it does not seem to us that other nations are ahead of us. Elaborate scientific papers reach us daily which have been printed in the reports of various societies and the archives of various learned bodies; the majority of them are marred by the failings that are prevalent in the theses of the Cambridge candidates.

Professor ALLBUTT'S book contains two sections, an introductory chapter which deals rather with the usual procedures of the writers of academic essays and a second chapter which is an essay on the art of literary composition, the teaching being here mainly in the nature of counsel as to the things to be avoided. In the first chapter he introduces us to his own methods of composition, rightly pointing out that every writer must have his personal plan of work. Professor ALLBUTT'S plan is not given by him as an example of one that it would suit all to follow but we are sure that the glimpse afforded into what we may call his "desk manners" will be valuable to most of our readers. It will bring home the fact, so well known to a few who have learned it by experience and apparently so little known to the scientific world, that something beyond a mass of information and a desire to publish the same goes to the making of a good book or a good essay. In the second chapter Professor ALLBUTT alludes to most of the pitfalls that lie in the path of those who fare forth into English composition without proper equipment, whose general culture supplies them with no proper standards of comparison, whose vocabulary is scanty, whose ear is ill-trained, and whose taste is faulty. Here we find pointed out the errors of those unhappy people who use fine language when uninspired by fine thought, who employ words of obvious derivative meaning in contradiction to that meaning, who lose themselves in the mazes of their metaphors, who cannot appreciate that force and clearness are lent to a sentence by the arrangement of the words in

[1] Notes on the Composition of Scientific Papers. By T. Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge. Price 3s. net. Macmillan and Co., Limited, London.

that sentence—who, in fact, shovel on to paper in the first phraseology that occurs to them all that they have to say, and, knowing their own intentions, are bewildered to find themselves misunderstood. Professor ALLBUTT does not draw his examples, either those he would have us imitate or those he would have us avoid, from medical literature, but has made his teaching far pleasanter and more entertaining by going to general literature for them. But as medical journalists we thank him for inculcating two lessons:—(1) that the rules of English prose, the methods of English style, and the graces of literary art can be as well employed upon a scientific theme as upon a romantic one; and (2) that without attention to the methods of writing and the arrangement of material a scientific work, however solid the attainments of its author, must lose much of its value. Professor ALLBUTT makes it apparent that to write well is not with many people an instinctive performance but rather the result of considerable industry, training, and application. ROBERT LOUIS STEVENSON, whose literary style, as displayed in popular romance and whimsical tales of adventure, brought home to the English public more than any modern writer has done the possibilities of our own tongue, described himself in an autobiographical note as "a sedulous ape," meaning that with the greatest industry he had imitated the style of all those of his predecessors whom he admired before he evolved a style of his own. It is a similar spirit of industry that Professor ALLBUTT would suggest as worthy of their consideration to the writers of scientific papers. We all know that style is nothing without matter, that arrangement is idle without facts—that, in short, it is essential for a man to have something to say before he considers how to say it—but when a scientific author has a message to deliver he should consider more carefully than he does at present the form in which he will deliver it. Pains expended in this way will gain for him a hearing from many ears that hitherto have been deaf.

It is disconcerting for those of us who say, and think, that the general level of culture in the medical profession is rising, to find Professor ALLBUTT's criticism of the literary capacity of medical men founded entirely upon the perusal of theses submitted by graduates in medicine, who are generally graduates in arts, of one of the older universities. The difference between the education of the university graduate and that of the diplomate of a corporation is supposed to be that the former has obtained, and profited by, his larger opportunities for general culture. It is allowed that in many instances in the British scheme of medical education the graduate is in no sense the scientific superior of the diplomate. Is he superior in general culture? Our experience is a large one and we know that we are right when we say that as a rule the graduates of the older universities display the advantages of a broader range of knowledge and a better preliminary grounding. If at the University of Cambridge these advantages have not led to any first-hand acquaintance with literary methods it is certain that no other young medical men or young scientific men, taken as a whole class, have higher literary capacities. Most of the candidates for the degrees of Bachelor of Medicine and Doctor of Medicine at the University of Cambridge will read Professor ALLBUTT's book and profit by it, and thus will remove from their University what seems to us to constitute a reproach. But we heartily recommend the book to all our readers. Professor ALLBUTT is an acknowledged master of elegant, precise, and good English. Apart from their scientific value his writings have claims to be considered models of prose, so that he has that best of all positions from which to be heard when he speaks of literary methods and literary style—he has employed them both with distinguished success.

Annotations.

"Ne quid nimis."

THE MEDICAL DIPLOMATES' SOCIETY OF LONDON.

THE Medical Diplomates' Society of London has been established for the purpose of meeting the natural desire of its members to obtain admission to a "final examination in *medicine*" which shall entitle them to a medical degree and shall thus remove the "serious disabilities" under which they labour by not possessing the title of "Dr." although their work is of a standard which would elsewhere than in London obtain for them a medical degree. We have received from the new society a copy of its rules and also a circular addressed *urbi et orbi*, asking for the "advice and support" of those into whose hands it falls and signed by the president of the society, Dr. F. J. Smith, of the London Hospital. By the rules of the society the qualification for membership is the possession of any diploma conferred either by the Royal College of Physicians of London or the Royal College of Surgeons of England; and there may be honorary members, not necessarily qualified as above, but of "recognised position and distinction in the medical profession." The declared object of the society is to promote the "professional advancement" of its ordinary members "by holding meetings, by providing opportunities for social intercourse, by such other means as the executive committee may approve from time to time, and by endeavours to obtain admission to an examination for a degree in medicine conferred by a British University." The language of the rule, it will be observed, differs from that of the circular, which sets forth that the contemplated examination is to be a "final" one in "*medicine*" only. The society, in short, represents the desire, the natural desire, of a certain number of "diplomates" to become entitled to call themselves "Dr." or "M.D." and to be affiliated to a "British University." We do not believe there is the least prospect that any British university will consent to give its degrees in medicine on any different basis of general attainment than is required for degrees in any other faculty. The position of the medical student in London is a peculiar one and its anomalies are now attracting much attention. He has the finest opportunities in the world for obtaining clinical instruction. He has so many chances of receiving adequate scientific education that embarrassment is produced by the duplication and reduplication of lecturers and laboratories. And yet it is exceedingly difficult for him to obtain the title of "Dr." which among the public is regarded as the hall-mark of a medical man. The Medical Diplomates' Society of London may assist in the cause of reform and so benefit succeeding generations of London students. But with regret we have to record our impression that the action of the members must be regarded as altruistic. We do not think it possible that they will obtain for themselves the title of "Dr." from any British university though

their professional attainments are known to warrant their ready acceptance as *alumni*.

THE NATIONAL LEAGUE FOR PHYSICAL EDUCATION.

A CORRESPONDENT has sent to us a copy of *Sandow's Magazine* for July, directing our attention especially to a paragraph under the heading "National Physical Education. Doings of the Month. Edited by M.D.," in which the writer says: "I have had several letters from various parts of the country asking various questions on the subject of national physical education, which will receive attention in another part of the magazine, but one from Mr. S. C. Oliver, of Newcastle-on-Tyne, would, I think, be better dealt with here. Mr. Oliver suggests that it would stimulate both pupils and teachers alike in their physical welfare if a national league of physical education was formed. The idea seems to be a good one and I thank my correspondent for the suggestion, to which I am giving my closest consideration, and I hope in our next issue to be able to place a rough draft of some such scheme before my readers." Certainly "M.D." and Mr. Oliver would appear to be by no means up to date and not to have watched the course of events. In THE LANCET of July 16th, 1903, a letter under the heading "A National League for Physical Education" was published from Sir Lauder Brunton, suggesting the foundation of such an association and shortly afterwards a dinner was given by a well-known host at the Athenæum Club to a representative company of guests, including the Bishop of Ripon, Lord Grey, Sir Henry Craik, Sir Frederick Maurice, and several members of the medical profession especially interested in the matter. The proceedings at this dinner were referred to in our own columns on July 25th and also at greater length in the *Manchester Guardian* on July 23rd, 1903, which also printed a sketch of a draft scheme. This scheme, as our readers are well aware, is now being developed and has received the adhesion of many of the most important leaders of the clergy, law, medicine, education, and science, as well as of a good many Members of Parliament and others. We are, of course, not aware whether "M.D." is a member of the profession but we are sorry to see the names of two medical men given at length as writers of articles in a magazine which admits the advertisements of quacks to its columns. Mr. Sandow, who in some ways has done good service to the cause of physical education, is ill-advised in not exercising a closer supervision over the contents of his *Magazine*.

THE ORBITAL MUSCLE.

A CAREFUL description of the musculus orbitalis in man and many mammals is given by F. Groyer in the Vienna *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften* (Band cxii., 1903, Abtheilung iii., p. 51). The credit of being the first to recognise the presence of this muscle in man, though its existence had long been known in animals, and to establish its muscular character belongs to H. Müller. Previously to his researches it was uncertain whether it was of a fibrous, an elastic, or a muscular structure and hence it was merely termed the "membrana orbitalis." Gurlt, indeed, before Müller at one time described it as a muscle but subsequently withdrew this statement and regarded it as an elastic structure. Differences have also existed as to its extent and its action, some, like Eckhard, maintaining that it contributes to the movements of the lids as well as acting on the globe. Harling, again, considers it to be only a part of the periosteum of the orbit. The results of Groyer's own observations he thus sums up. The musculus orbitalis consists in all mammals of unstriated muscle and its size is inversely proportional to that of the osseous walls of the orbit, completing the wall of the orbit where the bone is deficient. It is continuous with the periosteum of the orbit. The muscular fibres may be disposed in one or two lamellæ. The musculus palpebralis consists of either striated or unstriated muscle; in aquatic mammals it is composed of striated muscle, in terrestrial mammals of unstriated muscle, and in the latter classes it appears to play an important part in the propulsion of the tears. The transversely striated palpebral muscle arises in common with the recti muscles, a part accompanying each rectus and being attached to the sclerotic and a part entering the lid. The palpebral portion of the orbital muscle which is connected with the inferior, internal, and external recti is composed exclusively of unstriated muscle but that portion connected with the superior rectus forms a special muscle, the levator palpebræ superioris, the posterior part containing striated fibres, the anterior splitting into two lamellæ one of which forms a tendon and the other a layer of smooth muscle and forming the musculus palpebralis superioris. The unstriated musculus palpebralis arises both from the recti and from the levator palpebræ superioris by elastic fibres. In aquatic mammals the levator palpebræ superioris is identical with that portion of the musculus palpebralis which arises from the rectus superior. The musculus orbitalis and that portion of the musculus palpebralis which is composed of unstriated muscle are united posteriorly by an elastic membrane which represents the second origin of the musculus palpebralis. Muscular fibres extend to the nictitating membrane from each of those segments of the musculus palpebralis which arise from the internal and inferior recti. These fibres may be associated with fasciculi from the musculus levator palpebræ. The muscular fibres passing to the membrana nictitans are transversely striated in all aquatic mammals but completely unstriated in all terrestrial mammals. The nerve-supply of the musculus orbitalis is the same in all mammals, both aquatic and terrestrial, and proceeds invariably from the sympathetic. The musculus palpebralis when consisting of striated muscle is innervated by the same nerve as that distributed to the corresponding rectus but when it is composed of unstriated muscle it is supplied by the sympathetic.

A RECENT ANALYSIS OF THE STRAWBERRY.

THE strawberry is a great favourite and the present season has produced an enormous quantity of excellent sound fruit. The question of the dietetic value of the strawberry is frequently discussed and we are inclined to disagree with the very commonly asserted opinion that the strawberry should be forbidden to sufferers from gout seeing that its richness in certain salts tends to render the blood alkaline and to lower the acidity of the excretions. According to analysis which we have recently made the average composition of the 1904 strawberry is as follows:—

Water	89·500	per cent.
Soluble salts (including free acid) ...	1·146	,,
Lime and iron salts	0·137	,,
Proteid	0·800	,,
Sugar...	5·800	,,
Oily matter	0·154	,,
Cellulose and seeds	2·463	,,

Next to water the chief constituents are free acid (with acid salts), sugar, and fibre. The total acidity calculated as tartaric acid amounted to 0·822 per cent. A strawberry contains a greater proportion of water than does milk, which on the face of it may seem odd since the strawberry appears to be solid as compared with milk. As to nutritive value the strawberry can count for little unless we regard the sugar, which amounts to one-half the total solid matter, as valuable in this respect. This sugar, it may be remarked,

however, is fruit sugar or lævulose which is more easily assimilated by patients suffering from diabetes than are other sugars, so that strawberries on this account are frequently allowed to sufferers from mild types of that disease without any harm ensuing. On the whole, however, the strawberry is consumed rather for the sake of its moisture, sweetness, and flavour than for any value that it may possess as a food, and according to analysis this value is small. The salts are doubtless slightly laxative, while the indigestible seeds and the fibre, when consumed in large quantities, are calculated to increase peristalsis and thus to be serviceable in sluggish action of the bowels. The mineral salts of the strawberry contain quite a large proportion of potassium, phosphoric acid, and iron, so that the view that an abundant diet of strawberries may have the effect of a tonic is not without some reasonable basis. The colouring matter of the strawberry is very soluble both in water and alcohol, the solution giving a characteristic absorption spectrum, a dark band occurring in the green. The colouring matter contains iron in an organic form. Tannic acid has little or no action upon the strawberry, so that the "strawberry tea" is justifiable dietetically. The strawberry is remarkably soluble in alkaline solutions such as may be taken to represent the alkaline digestive juices of the intestine. In fact, practically the whole of the fruit is easily and rapidly soluble in weak alkali, excepting, of course, the seeds, which, moreover, are rejected by the organism. The oil extracted from the strawberry has a most attractive flavour and its amount, calculated on the dried fruit, is not inconsiderable. The unripe or unsound strawberry shows a much higher proportion of acid than does the sound fruit, a fact which amply accounts for the consumption of unsound fruit giving rise to diarrhœa and colic.

IN THE MATTER OF PATENT MEDICINES.

TREATED as a purely academic question the inquiry addressed to us by a correspondent in a letter published at p. 111 is not one difficult to answer. He asks whether a medical man knowing the formula of a patented proprietary article can have it made up as a prescription and, further, whether he may do so if it can only be made by a special patented process. To this reply may be made that the proprietor of any manufactured article protected by letters patent or of any process so protected is entitled to defend his rights against infringement and that he is likely to take steps to do so if he can discover that such infringement has taken place. When, however, the principles applicable to the enforcement of patent rights are applied to concrete cases of proprietary medicines there are matters of some importance which have to be taken into consideration. The law does not seem to be affected by the question of public policy involved in assigning monopolies with regard to the treatment of disease to certain persons. In a case relating to the sale of poisons under the Pharmacy Act of 1868[1] it was apparently taken for granted that the protection of medicinal compounds under the Patent Acts was a recognised practice, for in that case it was suggested that "chlorodyne" was exempted as a "patent medicine" from the operation of sections of the Pharmacy Act regulating the sale of poisons and the court only refused to accept that view on the ground that chlorodyne was merely a proprietary article in respect of which no letters patent had been granted. If, however, in theory combinations of drugs of a novel character can be invented and patented, in practice it will not be found that this often occurs. The man of science does not desire to create monopolies in connexion with the practice of medicine for his own benefit and the owner of the Miraculous Pill or Wonder-working Potion has not, as a rule, got a patentable article to register. He has obtained possession of a formula which is possibly useful and effective but which at the same time is one which medical men have used before and for which no novelty can be claimed. In these circumstances he does not take out letters patent for his nostrum but merely assigns to it a fancy name which he registers as a trade-mark and under which he advertises his wares. In this manner he can protect his trade without endangering it by making known how his so-called "patent medicine" is compounded. Were he to take out letters patent he would run the risk of others acquiring easily possession of his secret; it would in many cases be very difficult for him to detect them in using it and an attempt to prevent them might involve costly and possibly unsuccessful litigation. It would be awkward for the owner of the Miraculous Pill to have proved in open court that his formula was a simple one which any medical man might have prescribed and therefore not entitled to be the subject of patent rights and that in any case the pill's intrinsic value was about one-hundredth part of its sale price. We are not sufficiently aware of the circumstances in which our correspondent "Inquirer" is placed or of his intentions with regard to the patented article concerning which he writes to advise him upon the concrete case which he, no doubt, has in his mind. We can only say that the infringement of the rights conferred by letters patent can be prevented by legal process and that medicinal compounds or processes for their manufacture do not, as such, form any exception to the rule.

[1] Pharmaceutical Society *v.* Piper and Co., 1885, 1 Q.B. 520.

RADIUM AND DIAMONDS.

THE influence of radio-emanations on the constitution of matter is very curiously illustrated in some recent experiments made by Sir William Crookes. According to the results, if radium comes to be a common commodity amongst us some dismay may be caused to those who wear diamonds on finding that the carbon crystal under the influence of radium threatens to return to its less attractive form of graphite or crystalline black carbon. On the other hand, radium may turn out to be a "diamond improver." It is well known that radium emanations possess the property of darkening transparent bodies upon which they impinge and now Sir William Crookes has shown that this also holds good in the case of diamonds. The emanations convert not only the surface into graphite but alter also the colour of the body of the stone. It is therefore suggested that this observation may prove to be of commercial importance. For example, "if off colour stones can be lightened their value will increase, while if the prolonged action of radium is to communicate to them a decided colour they would be worth much more as fancy stones." This may add considerably to the business of the jeweller who, for a consideration, might undertake to submit "off jewels" to burial in radium for a season.

THE ROYAL ALBERT ASYLUM FOR IDIOTS, LANCASTER.

THE Royal Albert Asylum at Lancaster has cost in the last 40 years nearly £200,000 and has just received an important addition to its means of usefulness by the building of a fine block of industrial schools and workshops. The cost of these has been nearly £7000, of which sum Mr. Herbert Storey, the High Sheriff of Lancashire, has generously given £5000. The original workshops were inadequate owing to the increased number of patients capable of industrial training and from the rise of other buildings had become dark and unsuitable. Mr. Storey therefore offered to furnish a permanent memorial of the coronation of the King, as his father, the late Sir Thomas Storey, in like manner erected in the grounds the

Storey Home for 40 feeble-minded girls as a memorial of Queen Victoria's Diamond Jubilee. In the new buildings are shops for shoemaking, basket-making, cabinet-making, and wood-carving. There are tailors' shops, a brush and mat-makers' shop, and printers' and bookbinders' shop, while the basement is divided into a large playroom and an upholsterers' and sashcord makers' shop. Much attention has been given to the ventilation and lighting. The opening by Mr. Storey took place on June 24th in the presence of a large number of friends and supporters of the asylum. Sir J. T. Hibbert, chairman of the central committee, said the asylum had its beginning in November, 1864, when Mr. James Brunton of Morecambe offered to give £2000 "for the establishment of an asylum for the reception, care, and training of idiot children." Now there are 627 feeble-minded inmates of both sexes. The opening ceremony was brief. The door having been unlocked, Lord Muncaster, the Lord Lieutenant of Cumberland, formally accepted the gift. At the luncheon which followed, Mr. Storey in replying to the toast of his health said that while he did not anticipate that the new workshops would turn out persons so skilled as those endowed with complete faculties he looked forward to the training in habits of industry enabling the patients to earn their living. Sir John Hibbert said they still wanted a building for the reception of 20 or 30 new-comers where they might undergo a sort of quarantine. He felt sure that the money would be forthcoming before the end of the year and we may all hope that he will prove a true prophet.

NERVOUS DISEASES AND SYMPTOMS OF THE SCHOOL AGE.

UNDER the above title Dr. T. S. Clouston, President of the Royal College of Physicians of Edinburgh, contributed a paper to the *Parents' Review* for July which is of considerable interest to both medical and lay readers. He begins with a quotation from Dr. W. Leslie Mackenzie that "the nervous system of the growing child is the cardinal physiological problem of the educational life" and then proceeds to describe in simple, non-technical language some of the more important phases of the activity of the nervous system and their derangements. The nervous symptoms occurring in children during the school age—that is, from six to 18 years—he discusses under five headings—namely, disturbances of the muscular system originating in the brain, comprising epilepsy, chorea, hysterical fits, stammering, and squint; disturbances of sleep, especially insomnia; disturbances of nutrition the result of nerve changes; sensory disturbances, notably the different varieties of headaches; and lastly, mental disturbances. This section of the paper, as might be expected from Dr. Clouston, is most suggestive and forms an interesting *résumé* of some very important facts relative to the abnormal psychology of childhood. We are glad to notice that at the very outset Dr. Clouston states emphatically that "there are many popular misconceptions about 'mental symptoms' and moral defects which sensible parents and teachers should particularly avoid." He points out that these symptoms should be regarded in a great many cases as the equivalents in the mental sphere of headache and other such derangements on the sensory side. Impulsiveness, for example, which is merely a defect of mental inhibition or control, he points out as varying in some children with their state of health; again, laziness and stupidity may in many cases be nervous and not moral defects and many other perversions are to be regarded as mere symptoms of mental derangement or non-development. It is very important to realise that they should be carefully and judiciously treated on physiological and medical lines rather than by pedagogic and disciplinary methods. We can commend Dr. Clouston's paper to the notice of all who are interested in the education of children, more especially the weakly and backward. His general aims may be gathered from his closing paragraph which we quote in full: "The doctor and the physiologists nowadays strongly incline to the education theory of turning out a good all-round animal to face up the hazards of life; and the highest and most useful faculty, the one most worth cultivating, is inhibition—self-control. That can only be attained in most cases through health of body and soundness of mind."

ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THE annual dinner of this association was held on the evening of July 1st at the Whitehall Rooms of the Hôtel Métropole, London, Dr. J. Walton Browne, the President, being in the chair. A large number of medical officers attached to the Post Office and their guests were present but the gathering was not perhaps quite so numerously attended as in previous recent years. After the loyal toasts the President proposed the health of the Right Hon. Lord Stanley, C.B., M.P., His Majesty's Postmaster-General. Lord Stanley made a sympathetic reply and alluding to the lengthy toast list observed that medical men were evidently very unselfish seeing that they wished good health to so many people—a fact which must necessarily be to their own disadvantage. He also humorously referred to the fact that although he had only been recently appointed to the office of Postmaster-General those who had drawn up the programme had arranged that the title of the next song should be "Good Bye." The other toasts were "The Imperial Forces," proposed by Mr. Edward Bond, M.P., and responded to by Colonel S. Raffles Thompson; "The Secretary and Other Executive Officers of the Post Office," proposed by Sir Thomas Roe, M.P., and replied to by Mr. H. Babington Smith, C.S.I., the secretary to the Post Office, who, like the Postmaster-General, referred to the excellent work done by the medical officers; "The Association of British Postal Medical Officers," proposed by Mr. Eugene Wason, M.P., and responded to by the President; and "Our Guests," proposed by Dr. John Dunlop and replied to by Sir Dyce Duckworth. The proceedings were enlivened by pleasant music, songs being admirably rendered, in the intervals between the toasts, by Miss Annie Bartle, Miss Ethel Bevans, and Mr. Franklin Clive. The Imperial orchestra played a selection during the dinner.

THE CHILDREN'S COUNTRY HOLIDAYS FUND.

THE rôle which pure air plays in health and its conservation is now recognised on all hands and so is the fact that country life and scenes have a valuable effect upon the mind. Especially is this latter the case with children. If proof were required it is only necessary to be present at the return of a batch of poor children to one of the great railway termini in London after a sojourn in the country. Their complexions tell the tale of improved health and their tongues run ceaselessly in the discussion of their new ideas. There are several societies the object of which is to provide an annual country holiday to the poor children of London but the support which they receive from the charitable public is not at all commensurate with the undoubted good which they do. Among them is the Children's Country Holidays Fund the chairman of which has just received from Sir William J. Collins a letter which has been forwarded to us for publication. From it we take the following extracts: "Of some 800,000 children attending the public elementary schools of London only a small proportion can in any year enjoy the happy fortnight in a cottage home for which your fund provides the opportunity. Even in the case for which a change is urgently necessary there will, I fear, be many

disappointments unless the public will give a larger measure of support to your efforts and those of the ladies and gentlemen who give the fund such invaluable voluntary assistance. ..... To those who know as I do the home conditions of many of our humbler citizens in Central, East, and South London the possibility of any reduction in the number of children who will have a chance of this happy and health-giving fortnight in the country this year can only be contemplated with dismay and profound regret." Sir William Collins, who is chairman of the education committee of the London County Council as well as surgeon to two well-known charities, has had exceptional opportunities for knowing the conditions under which the poor of London live and we trust that his testimony as to the needs of some of London's little ones will have the effect of bringing to the coffers of the Children's Country Holidays Fund the money which is so urgently needed. Subscriptions may be sent to the offices of the fund, 18, Buckingham-street, Strand, London, W.C.

PRIZE-GIVING AT ST. MARY'S HOSPITAL.

Dr. W. B. Cheadle presided over the distribution of prizes to the successful students of St. Mary's Hospital Medical School on June 29th. The ceremony was held in the Medical School of St. Mary's Hospital and the prizes were given away by the Lord Chief Justice of England, Lord Alverstone, who, addressing himself to the students, observed that in no profession more than the medical was it essential to maintain the highest ideal of honour, and, moreover, there was no profession which brought out more the good qualities of a man. He particularly emphasised the importance of concentrating the mind upon the particular case presented for consideration and he reminded his hearers that in the practice of medicine there was scope for individual thought and independent research. Passing on to the discussion of the use and abuse of athletic sports he gave it as his opinion that sports ought not to be made the object of life but should be viewed as means whereby a man's life-work could be better done.

THE MYSTIC ELEMENT IN MEDICINE.

Professor F. Dercum of Jefferson Medical College, Philadelphia, in an interesting address delivered in May last at the twentieth anniversary of the foundation of the Philadelphia Neurological Society, dealt with the subject of mysticism in medicine. Since time immemorial superstition and magic have played a rôle in the treatment of disease. 4000 years ago the Egyptian healers subjected their patients to mysterious "passes" and manipulations, after which the patients were enveloped in the skins of sacred animals and conveyed to holy places where the treatment might be completed. The practice of uttering words and phrases in a hysterical delirium by healers supposed temporarily to be "possessed" of a god or spirit is also of very ancient date. The priestesses of Delphi and of other Greek temples did so in ancient times and the Shamans of Siberia and the priests of many savage and barbarous tribes still practise rites in which they pass into somnambulistic and hysterical states and give utterance to words which are regarded by the people as inspired by the god or spirit invoked, or do extraordinary deeds to cure disease. Thus in Siberia, says Professor Dercum, the priest, after his invocations, will "suck the part of the body of the patient which aches the most and finally take out of his mouth either a thorn, an insect, a stone, or some other object, which he then asserts to have been the cause of the pain." Rubbing and massage have been used for centuries but the ancients combined them with movements and passes which were believed to have a magic virtue. Cœlius Aurelianus prescribed friction by the hand for the cure of pleurisy and gave instructions for the manipulation of the insane and of epileptics. It is said that "when the manipulations were carried to excess the patients fell into a [hypnotic] lethargic sleep." Agrippa in the sixteenth century and the famous Paracelsus and van Helmont were among the earlier advocates of the doctrine of an animal magnetism. Magnets were used to heal illnesses, the theory of animal magnetism and the healing of the sick by the aid of magnets being constituents of the popular belief of the Middle Ages. Metals were also regarded by many as being possessed of mysterious virtues in the treatment of disease, an old belief traceable through Paul of Ægina and Galen to Aristotle. Lenoble in 1754 and Hall in 1774 are said to have effected wonderful cures by magnets, the theory of these operators being a special development of the popular belief to the effect that the heavenly spheres exercised a magnetic influence over human bodies and that the correct use of magnets was the only means of rectifying those ailments which arise from disturbance of the animal magnetism of the body. Many of these beliefs and practices, says Professor Dercum, were the prelude to the methods developed by Mesmer during the century following. While mesmerism was at its height three schools of animal magnetism sprang up. The first, that to which Mesmer himself belonged, asserted that the effects obtained were due to physical agencies alone. The means employed were friction, touches, passes, and grasping, the resulting phenomena being explained on the theory of a magnetic fluid or ether passing from the magnetiser to his subject or *vice versâ*. The school of Barbarin maintained that faith was the principal factor required, in consequence of which they were known as spiritualists. To their minds all physical means were merely accessories. The third school, that of the Marquis de Puysegur, occupied a middle position, explaining the results obtained by physical or psychical means as the case required. The adoption of hypnosis and its scientific study by the schools of Paris and Nancy three decades ago are regarded by Professor Dercum as the beginning of the scientific era, the work of Charcot, Richer, Liebault, and Bernheim having gone far to explain the nature (physiological process) of hypnotism and its relationship especially to the great neurosis hysteria. More than all others these two schools have succeeded, he considers, in placing the practice of hypnotism on a scientific basis. The special development of metallo-therapy, however, Professor Dercum regards as having proved nothing beyond the fact that "suggestion" plays the most important part and that the metals do not act by producing "emanations" or other subtle effects comparable with invisible radiations.

THE EVOLUTION OF THE "REST" TREATMENT.

Dr. S. Weir Mitchell of Philadelphia has published in the *Journal of Nervous and Mental Disease* for June an interesting account of the mode in which he was led to evolve the method of treatment of neurasthenia and other nervous disorders by rest. Very often it is found that discoveries made through accident prove to be of value and this, says Dr. Mitchell, was the way his discovery was made. During the Civil War between the North and South States "a great many cases of what we called acute exhaustion fell into the hands of Dr. M——, Dr. K——, and myself. These were men who, being tired by much marching, gave out suddenly at the end of some unusual exertion and remained for weeks, perhaps months, in a pitiable state of what we should call to-day neurasthenia." In these cases occurring in the war the neurasthenia, says Dr. Mitchell, came on with strange abruptness. It was more marked in intensity "and also more certainly curable than are most of the graver male cases of to-day." Complete

rest and plentiful diet usually restored their strength and enabled them to return to the front. In 1874 a lady with marked neurasthenia came under care. She was a tall, large, gaunt woman who had borne several children in rapid succession and who had overworked herself in charitable and other work to an extent far beyond her strength. Her weight was about seven stones, she was pale and anæmic, and could not climb the stairs owing to general weakness. Her appetite was feeble and capricious and she was only able to retain and to digest her meals if she lay down in a noiseless and darkened room. But any disturbance, excitement, or effort caused nausea and immediate rejection of the meal. "With care she could retain enough food to preserve her life and hardly do more." Staying in bed for a week brought on symptoms of violent emesis, with rejection of food and consequent extreme exhaustion. Having seen cases of tabes and rheumatic stiffness of joints improved by massage it occurred at this juncture to Dr. Mitchell that massage might also prove beneficial to his patient and that in this way her muscles might be exercised without fatigue. He also hoped that the appetite would be restored by this means and employed a nurse to massage his patient systematically several times a day. A few days later the electric (galvanic) current was applied to the muscles. Entire rest and seclusion were insisted on during this period. In ten days the patient began to improve. "The woman had found a new tonic, hope, and blossomed like a rose. Her symptoms passed away one by one." Her diet was steadily increased and malt with phosphates of iron was given regularly and daily. "I had found, in short," says Dr. Mitchell, "that with this combination of seclusion, massage, and electricity I could overfeed the patient until I had brought her to a state of entire health. In two months she gained 40 pounds and was a cheerful, blooming woman, fit to do as she pleased." Simple rest as a treatment had been suggested but not in cases of neurasthenia, adds Dr. Mitchell. Massage has a long history and is daily coming into wider use in treatment.

THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.

THE annual provincial meeting of the Incorporated Society of Medical Officers of Health was held at Newcastle-on-Tyne on July 2nd and was presided over by Dr. Joseph Groves. A paper was read by Dr. J. J. Boyd, medical officer of health of South Shields, in which he gave the results of investigations which he had made into the distribution of scarlet fever in different parts of South Shields during the 12 years 1892–1903. These investigations were of a very painstaking and thorough character and might well serve as a basis for observations in other towns. Dr. Boyd divided the borough into 86 districts made up practically of the enumeration districts as defined for the census of 1901. For each of these districts he obtained from the last census returns full details of population including the numbers living at different age periods, together with the number and size of the houses. He was thus able to calculate an attack rate corrected for age periods. With regard to the three years 1901–1903 he gave full information as to each of the 86 districts with respect to the corrected attack rate, the percentage of cases isolated in hospital, the proportion of tenements of less than five rooms, the number of persons per room, the social condition of the inhabitants, and the physical features of the localities, and with regard to the nine years 1892–1900 he gave the uncorrected average annual attack rate. The conclusions to which he came as the result of these investigations were that the physical features of a district did not apparently appreciably influence either the extent of the endemicity of the disease or its spread in epidemic times, that very poor class districts were apparently less subject to the disease than were more respectable neighbourhoods, and that hospital isolation if carried out to a high degree, that is to say, the isolation of at least 50 per cent. of the total cases, lessened the prevalence and spread of the disease. Dr. Boyd thought that the figures for the whole 12 years amply proved that in South Shields the isolation of scarlet fever in hospital had not resulted in an increased prevalence of the disease nor had it intensified its virulence. Mr. H. E. Armstrong said that he so thoroughly believed in the isolation in hospital of cases of scarlet fever that he had persuaded the Newcastle city council to expend £53,000 upon extensions to the existing hospital. Dr. T. Eustace Hill, Mr. Herbert Jones, Dr. John Taylor, Dr. W. W. Stainthorpe, Mr. T. Wilson, Dr. J. W. Hembrough, Mr. J. G. Willis, and the President also took part in the discussion and spoke approvingly of hospital isolation. At the close of the meeting the members of the society with their friends lunched together and in the afternoon a visit was paid to the Newcastle fever hospital at Walker-gate and to Tynemouth. At the fever hospital Dr. Sydney G. Mostyn, the medical superintendent, gave a demonstration of the steriliser for infected excreta which was designed in 1894 by Mr. Armstrong and Mr. W. George Laws, M.Inst.C.E., the city engineer. The essential features of the steriliser are the admission of steam into a cylinder into which the excreta have been discharged and the cooling of the contents of the cylinder after sterilisation and prior to being emptied into the sewer. Suitable non-return valves are provided completely to close the cylinder to all openings except that of the steam-pipe. Steam can also be admitted to the interior of the soil-pipe and of the waste-pipe from the slop sink.

MULTIPLE NEURITIS DUE TO GONORRHŒA.

MULTIPLE neuritis is a rare complication of gonorrhœa. At the meeting of the Société Médicale des Hôpitaux of Paris on June 23rd M. Ménetrier described a case which is important not only on account of the intensity of the symptoms but also because it appears to be the only one in which a necropsy was made. A man, aged 46 years, was admitted to hospital on Oct. 27th, 1903, suffering from gonorrhœa and complaining of pains and of almost complete powerlessness of his four limbs, which confined him to bed. The patient had previously had several attacks of gonorrhœa which lasted five or six months. More than six months before admission the present attack of gonorrhœa began and a month later he commenced to feel weak in his legs. This symptom was most marked at the end of the day under the influence of fatigue. It increased and at the end of September he had to give up work. At the same time he felt pains in the lower limbs which were so severe as to prevent him from sleeping. The pains extended to the upper limbs, in which also power was lost but to a much less degree than in the lower limbs. On admission the discharge was still in full activity. The pus was almost completely composed of mononuclear cells and contained an abundance of gonococci. The lower limbs were so weak that the patient could not raise them from the bed and the muscles, particularly the adductors, the quadriceps, and the muscles of the calf, were atrophied. The sensibility of the lower limbs was blunted. Deep pressure was very painful, the muscles being hyperæsthetic. Pressure on the nerves was equally painful. There were also spontaneous pains and tingling in the lower limbs. The knee-jerks were absent. In the upper limbs the paralysis was less though the muscular masses of the arm, forearm, and hand were atrophied. Movements of the upper limbs were feeble and incoördinate. Sensory troubles were also less severe; cutaneous sensibility was preserved and the muscles were less tender than in the

lower limbs. In the trunk the muscular atrophy was less marked but the patient had great difficulty in sitting up. Faradic irritability was entirely lost in the lower limbs; in the upper limbs it was preserved but a strong current was necessary in order to obtain a reaction. In the forearm the flexors responded more readily than the extensors; the extensor indicis responded feebly and the common extensor of the fingers not at all. On the following days the paralysis of the upper limbs increased; soon movements of the arms became impossible and those of the forearm became limited to flexion of the fingers. Then the paralysis spread to the trunk and neck; the patient could not sit up or maintain his head in position when it had been raised from the bed. He lay inert but always complaining of sharp pains, principally in the upper limbs. His general condition became worse and a bed-sore rapidly formed over the sacrum. Finally he became feverish, the tongue became dry and dirty, the respiration became difficult, and fine subcrepitant râles were heard at a spot at the right base. Death from broncho-pneumonia took place on Nov. 13th. At the necropsy the brain showed only congestion of the pia mater. The pia mater of the cord was also congested. The large nerve trunks (sciatic nerve and brachial plexus) as well as the smaller nerves (branches of the radial and crural nerves) appeared normal to the naked eye but were preserved for histological examination. The muscles of the thigh and forearm, though diminished in volume, were of good colour and showed no changes to the naked eye. The lungs were consolidated at the bases. On section a drop of pus trickled from the orifices of the bronchi. The liver was large and yellow and appeared to be fatty. The kidneys were much congested, soft, and tumefied. The urine contained in the bladder was purulent and the mucous membrane was congested. Microscopic examination of the brain was negative. In the cord the only lesions found were chromatolysis, globular swelling, and vacuolar changes in some of the cells of the anterior cornua. These changes occurred principally in the cervical and lumbar regions. In the nerves pronounced changes were found at the peripheral ends which became less marked as the central end was approached. Not a single fibre in the radial nerve was normal; the myelin was broken up or absent and the axis cylinders were irregularly swollen, fragmented, or destroyed. The lesions were purely degenerative, there being no multiplication of nuclei. A branch of the crural nerve showed similar changes. The fibres of the brachial plexus and sciatic nerve were almost intact, showing only fragmentation of myelin in a few without changes in the axis cylinders. The lesions in the spinal cord may be explained as due to the same toxic cause which produced the neuritis but possibly they were secondary to the latter. Marinesco has shown that such cellular changes may result from multiple neuritis and also from traumatic neuritis.

THE WRECK OF THE EMIGRANT SHIP "NORGE."

ONE of the most lamentable disasters at sea that has occurred during recent years took place in the North Atlantic Ocean on June 28th, when the Danish emigrant ship *Norge*, carrying a crew of 71 men and nearly 700 passengers, consisting, so far as is at present known, of Swedes, Danes, and Russian Jews, struck on Rockall, a rock 75 feet high, about 140 miles distant from St. Kilda, the nearest land. The *Norge* belonged to the United Steamship Company of Copenhagen and left that port on June 22nd for New York. The survivors have been rescued in different boats and landed at Stornoway, Aberdeen, and Grimsby, but it is feared that more than 500 lives have been lost. As yet no authentic details of the cause of the catastrophe have been received; it is only known with certainty that at eight o'clock on the morning of the disaster the passengers felt a shock and almost immediately the vessel began to sink. Stories of gallant heroism on the part of the crew, only a few of whom were saved, and of the passengers are told by the survivors. It is said that the boats were improperly managed, some of them being overcrowded and others only half full. This, if true, was no doubt due to the excited state of the passengers, but the fact that only a few of the crew were saved shows that those in charge of the vessel accepted to the full their responsibilities.

FOOD PRESERVATIVES.

A COMMITTEE has recently been sitting in New York in order to collect evidence as to adulteration and more especially as to the use of preservatives in food. The committee consisted of Dr. William Frear (chairman), Dr. E. H. Jenkins, Professor M. A. Scovel, Professor H. A. Weber, and Dr. H. A. Wiley. In discussing the use of preservatives Dr. Frear is reported to have said: "The testimony of the manufacturers has generally been that such goods cannot be packed without preservatives without a certain percentage of loss. ..... The best opinion seems to be against the use of preservatives as a general proposition as injurious; but, on the other hand, it is argued that the quantity used is so small as to be harmless. The manufacturer seems to believe that it ought to be enough if all goods containing preservatives were plainly labeled so that the consumer could see for himself and take the responsibility for what he is taking into his stomach." It is expected that the Secretary of Agriculture in a few months will be able to promulgate a set of standards which will define what is meant by purity in foods and what constitutes adulteration.

THE USE OF RADIUM IN SECTION CUTTING.

THE electrification of sections as they "peel off" the microtome in section cutting is often a source of trouble which leads in fact to the sections adhering to each other and to the knife of the microtome. Professor Henry Dixon, of the Botanical Laboratory, Trinity College, Dublin, bearing in mind the property of radio-emanations of discharging an electrical condition, ingeniously applies this property to the prevention of this source of annoyance. In a note in *Nature* he points out that these undesirable phenomena may be completely avoided by fixing a tube containing five milligrammes of radium bromide on the microtome knife in close proximity to the place where the paraffin-wax ribbon is forming. The breaking up of sections and consequent loss of continuity in the seriation may be thus avoided, the radiations from the radium discharging the electrification of the paraffin sections by ionising the air in their neighbourhood. This very ingenious device may probably be applied with equally satisfactory results in other instances where the cause of the trouble—namely, the electrification of sections or thin shavings—is the same.

THE CARE OF FEMALE INEBRIATES.

IN the *Standard* of July 1st there is a letter on the subject of female inebriates by Sir Alfred J. Reynolds, Sheriff of the City of London, which we are sure will be read with satisfaction by all right-thinking people. In it he announces that the London County Council has made ample arrangements for the admission of all classes of females committed within the metropolitan area (exclusive of the City) into inebriate reformatories certified under the Inebriates Act of 1898. All London cases can now therefore be committed without restriction as to age, condition, health, character, or religion. Sir Alfred Reynolds points out that during the year which ended on March 31st, to say nothing of the vast number of cases disposed of by fines, as many as 8256 women were committed

by London magistrates to Holloway Prison for drunkenness and disorderly conduct alone. Of these 580 had been three or more times convicted within the 12 months next preceding their last offence; while 4953, or 60 per cent. of this number, had previous convictions for like offences. The London County Council is to be congratulated upon having by its action facilitated the working of the Inebriates Act and it is hoped that not only will the expense to the public caused by this class of offenders against the social order be lessened but that much good in many other ways may accrue.

THE Marquis of Londonderry, President of the Board of Education, has consented to receive on Monday next, July 11th, at the Privy Council Office, a deputation of members of the medical profession who will present to him a petition in favour of the compulsory teaching of hygiene and temperance in public elementary schools. The petition bears the signatures of 14,718 members of the medical profession.

THE Wightman lecture of the Society for the Study of Disease in Children will be delivered by Mr. R. Clement Lucas at the Victoria Hall, Hotel Cecil, London, on Friday, July 15th, at 6.30 P.M. The title of the lecture is "The Hereditary Bias and Early Environment in their Relation to the Diseases and Defects of Children." The lecture is open to all members of the medical profession.

THE VISIT OF THE KING AND QUEEN TO ST. BARTHOLOMEW'S HOSPITAL.

THE laying of the foundation-stone of the new building of St. Bartholomew's Hospital by His Majesty the King took place on July 6th. The King and Queen on arriving at the hospital were received in an ante-room adjacent to an enormous marquee holding over 3000 invited guests. Their Majesties were greeted by the Prince of Wales, President of the hospital, and Dr. S. Gee, the senior physician to the hospital, and Mr. John Langton, the senior surgeon, were presented to the King. The Royal guests were then conducted to the marquee where, prayers having been read by the Bishop of London, the PRINCE of WALES presented an address to the King and Queen which he read distinctly and loudly so that it could be easily heard by all in that vast assembly. He referred to the foundation of the hospital in the year 1123 and commented on the record of the hospital since the year 1547. At the present day he said that St. Bartholomew's Hospital contained 740 beds, inclusive of 70 in its country branch at Swanley. During the last 50 years the hospital had given gratuitous relief to more than 7,000,000 of the sick poor. The students working daily within its walls averaged about 500 and in the great school attached to it more than 6000 students had received their medical education during the last half century and had carried the fame of their "alma mater" all over the world. The rapid advances of medical science during recent years had compelled the governors, acting on the advice of their eminent medical staff, to contemplate the entire rebuilding of the hospital as funds became available. They had issued an appeal to the public to enable them to carry out the rebuilding referred to. To the City of London and its wealthy citizens that appeal ought to come home with peculiar force, for the hospital in its present development was in great measure the creation of the inhabitants of what had been termed "the wealthiest square mile in the world." St. Bartholomew's Hospital had not asked for help for more than 150 years and the governors trusted that the presence of their Majesties that day might be regarded by the public as showing their Majesties' desire that the rebuilding of that great and ancient institution might not be impeded and crippled for lack of funds.

To this address the KING returned the following reply: "The Queen and I have great pleasure in being present to-day to lay the foundation-stone of the new building of this famous hospital and we thank you heartily for the loyal address which our dear son, as President, has presented on behalf of the governing body. You have reminded us of the antiquity of this foundation and of the favour shown to it by so many of our Royal predecessors. I recollect the lively satisfaction which I felt in holding the presidency of this hospital for so many years and I shall continue to take the deepest personal interest in its work and fortunes. We are happy to see that those who are responsible for carrying on the excellent work have shown by their scheme for rebuilding the hospital their intention that the future of St. Bartholomew's shall not be unworthy of its fine traditions in the past. The names of the famous men educated here prove that an institution of this kind is not merely a refuge for the suffering but that it is also a school for the advancement of the science and practice of medicine, and in this way the influence of this and other great hospitals of this country extends beyond merely local limits to foreign countries and the colonies and dependencies of our Empire. We confidently believe that our subjects, and especially the citizens of London, will not fail to show interest in the progress of the scheme for rebuilding the hospital nor allow the efficiency of the undertaking to be hindered by want of the necessary funds."

The Treasurer, Sir TREVOR LAWRENCE, then formally asked the King to be pleased to lay the foundation-stone, and on the Royal assent being given the architect, Mr. E. B. l'Anson, was presented by the Treasurer and submitted to the King plans of the building proposed to be erected and then handed to His Majesty the trowel and mallet with which the King performed the ceremony of laying the foundation-stone.

The TREASURER then approached the Queen and asked if it was her pleasure to receive her "charge" as a Governor of the Hospital, Her Majesty being the first lady elected a Governor as well as the first donor to the building fund. The Queen having assented the "charge" was read by the Clerk of the Hospital, Mr. W. H. CROSS, in accordance with ancient custom and was as follows:—

> Your Majesty having been elected and chosen a Governor of St. Bartholomew's Hospital, it is your duty and charge to acquit yourself in that office with all faithfulness and sincerity; endeavouring that the affairs and business of the said hospital may be well ordered and managed; and promoting the weal and advantage of the poor wounded, sick, maimed, diseased persons, harboured in the said hospital.
>
> To this end your Majesty is now admitted a Governor of St. Bartholomew's Hospital.

The Treasurer then presented to Her Majesty a copy of the governor's charge and a governor's staff in miniature, after which Madame Albani assisted by Miss Catherine Jones and other talented singers gave a well-applauded rendering of Sir Edward Elgar's arrangement of "God Save the King." The royal party then departed, passing on their return journey through the great quadrangle of the hospital amid the acclammations of many of the patients whose beds had been placed in the open air. The King, as he was leaving was pleased to announce that he would contribute towards the building fund the sum of £1000.

In the special appeal now issued by the governors of St. Bartholomew's Hospital the necessity is explained of the need the hospital labours under of rebuilding the institution in accordance with modern requirements. The most pressing necessity of the time is the construction, at a cost of upwards of £100,000, of new out-patients, casualty, and special departments, the foundation-stone of which has just been laid by His Majesty the King. This building will contain the out-patients and casualty departments, the special departments, the resident medical officers' quarters, common room and luncheon room for students, surgery beds, the hospital kitchen, the dispensary, and other conveniences. The building will have a frontage on Giltspur-street. The resident medical officers' quarters will be on the Giltspur-street frontage, where also there will be a common room and luncheon room for the students. In the rear of the resident medical officers' quarters there will be a large waiting hall for out-patients and casualty patients. Surrounding this waiting hall there will be 20 medical and surgical consulting rooms. Rooms will also be provided for the reception and treatment of accident and emergency cases. The dispensary will be in the rear of the waiting hall. The hospital kitchen will be on the second floor, over the dispensary. The upper floors over the waiting hall will contain rooms for the treatment of surgical and medical out-patients and the following special departments: diseases of

women, ophthalmic, diseases of the skin, aural, diseases of the throat, orthopædic, dental, and electric. Rooms containing ten beds will be provided in the building for the reception of patients who remain only a few hours in the hospital. Ample means of exit in case of fire or other emergencies will be provided and the building will be constructed with fire-resisting materials and fitted with the most approved sanitary and other appliances.

ARMY MEDICAL DEPARTMENT REPORT FOR 1902.[1]

THE nation and the Government are confronted at the present moment with a most comprehensive and difficult problem. It is how consistently with sound economy to get an army that shall be efficient and at the same time suited to the needs of the country and the empire. That is the task on which Mr. Arnold-Forster and the Government are at present engaged and the War Minister apparently does not despair of being able to accomplish it. At first sight the new volume of Army Medical Reports just issued would seem to have no direct and practical bearing on this problem, but a very little consideration will soon dispel that idea. To begin with it is as impossible to have an army without recruits as to have a river without water and that section of the report devoted to the recruiting of the army is calculated to arrest attention. It tells us that the total number of recruits rejected in 1902, inclusive of those who were discharged as unfit for service within three months of enlistment, was equal to a ratio of 325·42 per 1000 of those who presented themselves. Whether that portion of the population from which army recruits are mainly drawn can or cannot be considered as affording any criterion of the health and physique of the general population the figures nevertheless show the existence of conditions in our midst which point to want of proper food, good air, and wholesome surroundings, and fully justify the inquiries that are taking place. Moreover, it is a platitude to say that as far as our army is concerned health and physical efficiency go together and that these depend upon hygienic conditions the provision of which usually spells money.

Turning, however, to the more immediate subject of the report itself we select the following points from the excellent preliminary statement which in the course of the first few pages summarises the health of the troops at home and abroad. The average strength of the European troops in 1902, exclusive of the troops employed in South Africa during the period Jan. 1st to May 31st, was 254,357 warrant officers, non-commissioned officers, and men. The total number of admissions to hospital was 191,250 and the total deaths were 2152. The admissions represent a ratio of 751·9 per 1000 of the strength; the deaths one of 7·52 per 1000 on a strength of 286,026, which includes detached men not shown in the returns received. Amongst the troops serving in the United Kingdom the admission, mortality, and constantly sick rates were lower than in 1901. There were 114 admissions for, and 35 deaths from, enteric fever, which shows a fractional decrease in both the admission and mortality rates as compared with 1901 and is practically the same as the average rate. At Gibraltar the admission and constantly sick rates were lower but the mortality was somewhat higher than in 1901. In the Malta command, which included Crete, there was a decrease in the admission, mortality, and constantly sick rates. The admission and mortality rates for enteric fever were lower than in 1900 and considerably below the average rate. Malarial fever was again very prevalent in Crete, although the admission rate for the command was lower than in the previous year. In Canada the health of the troops was good, there being a decrease in the admission, mortality, and constantly sick rates. In Bermuda there was a serious epidemic outbreak of enteric fever and as the civil population also suffered to a large extent a commission was convened to inquire into the origin and spread of the disease. The opinion was that the enteric fever was of South African origin, brought to the colony by Boer prisoners of war. In Western Africa malarial fevers, though not so prevalent as in previous years, furnished the majority of the admissions. In Mauritius the admission, constantly sick, and death rates were higher than in 1901. Plague continued throughout the year amongst the civil population, no case occurring among the troops. Malarial fevers were prevalent, but there was a decrease in the admission rate as compared with 1901. In Ceylon the health of the troops was satisfactory. There was a slight increase in the ratio for venereal diseases as compared with the previous year. There was also an increase in the admission rate for enteric fever.

No case occurred amongst the troops at Diyatalawa, notwithstanding that the disease was more or less prevalent in the adjacent Boer camp throughout the year. In China the admission, mortality, and constantly sick rates were higher than in 1901. Malarial fevers showed a large increase as compared with the previous year. An epidemic of dengue which first attacked the native population and afterwards spread to the European community occurred during the summer and autumn of the year. The disease was of a severe type and was the cause of a large number of admissions among the troops as well as amongst the women and children. Plague was again epidemic and there were also a large number of cases of cholera among the civil population, but among the troops only a single admission under each of these diseases occurred. In India there were a decrease in the admission, constantly sick, and invaliding ratios and an increase in the mortality rate. The chief causes of sickness as usual were malarial fevers and venereal diseases, which together caused 49·63 per cent. of the admissions for all diseases. Malarial fevers and dysentery were less prevalent than in 1901 while venereal diseases and enteric fever both showed an increase as compared with the previous year. As regards enteric fever it is noted that the satisfactory steady annual decrease which had been taking place since 1899 has not been maintained and there has also been an increased death-rate from the disease. The increase in the number of admissions, occurring as they do for the most part in young soldiers during their first year's service in India, is attributed to the arrival of large drafts from home and reliefs from active service in South Africa. The chief points observed during 1902 in connexion with the causation of enteric fever in India are discussed at length. During the year three fatal cases of cholera occurred and there were also four admissions for plague, one of which terminated fatally. In Egypt the admission, death, and constantly sick rates were lower than in 1901 and were also lower than the rates for the decennial period. The ratio of admission for enteric fever was fractionally higher than in the previous year and that for venereal diseases was lower. Cholera broke out about the middle of July in a village in Upper Egypt and spread to Cairo and Alexandria where it became epidemic among the civil population. Three cases occurred amongst the troops at Cairo with fatal results and there were two fatal cases amongst officers at Alexandria. The last case in Cairo occurred in November, but the disease still remained in Alexandria at the end of the year. Khartum was again used during a portion of the year as a station for British troops.

Some new charts for the various commands occupied by British troops in 1902 and four new abstracts have been prepared and added to the present volume. These besides being new strike us as an instructive and useful feature, the abstracts being calculated to carry out the intention of their compilers—namely, to facilitate the making of statistical comparisons and to unify the statistical details for the whole army at home and abroad.

We wish to call special attention to the extracts (p. 136 *et seq.*) from an exhaustive and admirable report of Lieutenant-Colonel W. G. Macpherson, C.M.G., R.A.M.C., which has been circulated as an official publication, on the sanitary conditions in South Africa and to the information and valuable remarks embodied in the report on the health of the European troops serving in India in regard to the causation of enteric fever in that country (pp. 201 and 205 *et seq.*) and to those on venereal disease (*vide* p. 233 *et seq.*).

At the end of the section of the Army Medical Report dealing with the health of the troops on board ship we find it noted that, according to returns received at headquarters, the number of invalids from the South African Field Force who

[1] Army Medical Department Report for the year 1902. Vol. XLIV. London: Printed for His Majesty's Stationery Office by Harrison and Sons, St. Martin's-lane, printers in ordinary to His Majesty, and to be purchased, either directly or through any bookseller, from Eyre and Spottiswoode, East Harding-street, Fleet-street, E.C.; or Oliver and Boyd, Edinburgh; or E. Ponsonby, 116, Grafton-street, Dublin. 1904. Price 1s. 9d.

returned to England during the year was 16,904 and 14 deaths occurred during the voyage home, but full statistics of the South African invalids are reserved for inclusion in the records of the campaign.

MR. CHAMBERLAIN AND PREVENTIVE MEDICINE.

THE Royal Institute of Public Health gave a banquet on June 30th at the Criterion Restaurant, London, in honour of the Right Hon. Joseph Chamberlain and in recognition of his services to preventive and tropical medicine whilst filling the office of Colonial Secretary from 1895 to 1903. The chair was taken by Dr. W. R. Smith, President of the Institute, and amongst those present were the Right Hon. A. J. Balfour, the Duke of Northumberland, the Duke of Marlborough, the Duke of Abercorn, the Earl of Onslow, Lord Strathcona, Lord Iveagh, Mr. A. Lyttelton, Sir Joseph Fayrer, Sir Patrick Manson, Surgeon-General Sir Francis Lovell, Sir William Broadbent, Major Ronald Ross, Professor T. Clifford Allbutt, Mr. J. Cantlie, Lieutenant-Colonel R. H. Firth, R.A.M.C., Professor R. Boyce, Professor C. S. Sherrington, Mr. W. M. Haffkine, and Dr. J. Mitchell Bruce.

Before the usual loyal toasts were honoured the Honorary Fellowship of the Royal Institute of Public Health was bestowed upon Mr. Balfour, Lord Iveagh, and Mr. Chamberlain.

Dr. SMITH, in proposing the health of the guest of the evening, Mr. Chamberlain, said that they were deeply indebted to him for the great progress which it had been possible to make in various branches of research. He then alluded to the services which Mr. Chamberlain had rendered in regard to preventive medicine and when the speaker explained how through Mr. Chamberlain's agency the London School of Tropical Medicine was founded the audience greeted the remark with prolonged cheering.

When Mr. CHAMBERLAIN rose to reply he was received with such an outburst of applause that he had to wait some considerable time before he commenced his speech, in the course of which he said that as Secretary of State for the Colonies there was brought home to him, as there must be brought home to everyone who filled that position, the importance of caring for the health of those who were doing the work of the Empire across the seas. He took advantage of the opportunities which his office gave and was able to secure some tangible expression of the interest which was universally felt in preventive medicine so as to give effect to the work of such institutions as the Royal Institute of Public Health. He accepted the honour which was done him that evening because a gathering of the kind they saw before them, bringing together the experts in medical science and the statesmen and legislators who could give effect to their conclusions, was sufficient justification, and nothing but good could result from calling public attention to the importance and magnitude of the work in which they were interested. Referring to the progress which has been made in medicine and surgery, Mr. Chamberlain said that he did not know whether the antiseptic treatment, which had made Lord Lister's name a household word throughout the world and gained for him the gratitude of the human race, was to be considered a triumph of surgery or of medicine but he did know that medical research, assisted by surgical science, had in the last few years thrown a flood of light on the origin of disease and that certainly was the first step to the cure of disease. He could not tell whether it would be possible greatly to extend the three score years and ten which was the Psalmist's limit of normal human life, but he hoped that their descendants might pass through their earthly course with less suffering and more vigour than their predecessors. While they looked with confidence to the further results of curative medicine, he thought all would agree that preventive medicine was better still. The importance of securing healthy conditions of life was recognised by everybody who cared for the welfare of his fellow creatures. Without sanitary reform social reform was an empty phrase; preventable disease at that moment was a great agent for filling the workhouses, raising the taxes, and weakening the fibre of the people. In peace preventable disease was of the utmost importance, in war it destroyed more soldiers than the bullets of the enemy, and meanwhile the administration of the Empire was lessened in efficiency by the preventable disease to which its agents were constantly subject. It was to the efforts of men like Sir Patrick Manson, Professor Ross, Professor Haffkine, and the others who had been devoting their time to tropical medicine and to research and to the causes of tropical diseases and their remedies, that his attention and warmest sympathy were chiefly directed. The work of the century was the consolidation of the Empire and wherever the British rule was established there they would find the Government officials dealing with every conceivable problem of education, of trade, of health, and of the development of the countries given to their charge. Those men were the great assets of the Empire, they must prize them and value them and do everything to keep them in the vigour of life, and it was for that reason, Mr. Chamberlain said, that he attached so much importance to the investigation, to the studies, and to the researches which he believed in the course of time would make those tropical climates which had been each in their turn the white man's grave places where white men could live in comfort. Mr. Chamberlain concluded by saying that that was the reason why one of those almost unknown students working in laboratories in London, Liverpool, and elsewhere might be doing more good for the Empire than any statesman had been able to do, however high his position.

Mr. BALFOUR, in responding to the toast of "Preventive Medicine and the State," proposed by the Duke of NORTHUMBERLAND, said that preventive medicine was concerned with the fact that the urban population was increasing relatively to the rural population which raised the problem whether the result would be some falling off from the ancestral vigour of the race. The internal problem for preventive medicine was, therefore, to see that deterioration did not occur in the great accumulations of our population in the ever-growing centres. But there was the external problem for preventive medicine as to how they were going to develop the great tropical regions under British superintendence if the best of the men who were sent out were cut off in the prime of their existence. The blood tribute hitherto exacted from the British race in the great tropical regions had been so great that it was quite impossible, unless preventive medicine came to the rescue, to turn those great possessions to the best account. If they turned the great tropical colonies into places where the white man could live in reasonable health and comfort there would be added directly and indirectly incalculable gains to the prosperity of the British Empire.

Mr. CANTLIE, the honorary secretary of the Institute, in a witty speech proposed the toast of "The Guests," which was acknowledged by Lord ONSLOW.

The Duke of MARLBOROUGH then proposed "The Royal Institute of Public Health," which was replied to by Dr. SMITH.

THE MIDWIVES ACT, 1902.

THE members of the Central Midwives Board met on June 30th at 6, Suffolk-street, London, S.W., Dr. F. H. CHAMPNEYS being in the chair.

Under Section 3 of the Midwives Act it is laid down that one of the duties and powers of the Central Midwives Board is to appoint examiners and this matter came under the notice of the Board, appearing on the agenda paper as the first item of business after the reading of the minutes of the last meeting.

Dr. C. J. CULLINGWORTH opened the discussion by proposing that a list of examiners both for London and the provinces should be prepared by the Central Midwives Board from those who were willing to serve and to act when required by the Board.

Dr. J. WARD COUSINS at once raised the important point that by merely putting the words "a list of examiners" no restriction was placed upon the choice of examiners. Dr. Cousins did not waste any time but in a very few words made out a good case for the view that the examiners should be registered medical practitioners. He urged that the Central Midwives Board ought to work so as to gain the confidence of the medical profession because it was through practitioners that the Board would have to work. It was necessary therefore to secure the support of the medical profession and to do that the Board must make it clear that

examiners must be qualified practitioners. There was also the further consideration that the subjects of the examination required medical men as examiners. Dr. Cousins therefore moved as an amendment—

That the wording of the clause should be "a list of examiners who shall be registered medical practitioners."

Mr. E. PARKER YOUNG supported the amendment and said that it was a retrograde movement to suggest that the examiners might be other than registered medical practitioners. He very clearly brought out the weighty argument that the public demanded that the examiners under the Midwives Act should be highly qualified medical men commanding the esteem and confidence of the profession.

Miss WILSON took quite the opposite view. She said it was not a retrograde movement and her reasons were that a matron or a midwife would be a useful addition to the Board of Examiners because very few medical men undertook to teach details of nursing.

Dr. CULLINGWORTH thought that the examiners chosen would be for some time to come qualified medical men but considered that the Board should be left free to appoint, if it thought right, a trained midwife or matron as an examiner. He said he would not lend himself to the appointment of midwives as examiners straight away or without consideration but he contended that the Board ought to have the liberty to do so if it so wished.

The amendment restricting the examiners to qualified medical practitioners was, however, lost on being put to the vote and the Central Midwives Board is therefore now free to appoint anyone whom it chooses to select to the post of examiner. It is worth putting on record that Dr. W. J. SINCLAIR before recording his vote in favour of the amendment warned the Board that its duty was to make it clear to the medical profession and to all who wished to enter for the examinations that those examinations would be carried out by duly qualified medical practitioners, otherwise what was to prevent a highly-gifted chambermaid from being made an examiner? Dr. COUSINS also succeeded in sounding a note of warning before he gave his vote in favour of the amendment and no one at the Board seemed anxious or ready to answer his question as to how any woman trained or taught under the flimsy rules and regulations of the Midwives Act could possibly be considered properly qualified to undertake the duties of an examiner. There are few medical men who will not agree with Dr. Cousins that it would have given the profession great satisfaction if the Board had accepted the amendment and restricted the choice of examiners to properly qualified registered medical practitioners.

The first examination under the Midwives Act is to be held in May, 1905, and after that the examinations will take place twice a year in London and the provinces simultaneously on the same papers, or more often if necessary. The provincial centres are Bristol, Manchester, and Newcastle-on-Tyne. The arrangements and regulations referred to in the preceding lines were not arrived at until after a long and wearisome discussion in which the same arguments were often repeated involving much waste of time. Some members of the Board should remember that the mere repetition of an argument or opinion does not tend to strengthen it but if anything constant iteration may weaken its effect.

Among the directions to examiners the Board agreed to include one that directs the examination to consist of not fewer than six questions, the time allowed for answering to be three hours. The examinations are to consist of a written and an oral part and are to be conducted by not less than two examiners. In connexion with the question of the examination Miss R. PAGET asked if there should not be some laxity at first. "Surely," she said, "for the first examination you will not be too strict." Dr. CHAMPNEYS explained that it was necessary to start with a proper standard to which Miss PAGET replied, "Surely medical examinations began gently." Later this speaker further urged that laxity in the examinations was to be considered because the country was in need of midwives, but as Dr. SINCLAIR very rightly pointed out that amounted to an argument of pity, the practical effect of which would be that the country would be supplied with an inferior article.

After consideration of applications for certificates the names of 829 women were passed under Section 2 of the Act and ordered for entry on the roll, the total number enrolled being 6159.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 8, 1826.

Diseases of the Pancreas.[1]

Little need be said upon this subject because it is hardly possible to discover the existence of disease in this organ during life, so as to distinguish it with certainty from that of the neighbouring parts. That the pancreas is liable to inflammation, and that in various degrees, may be easily inferred from analogy. Such a state might be suspected from the occurrence of deep-seated pain in the epigastric region, increased upon pressure. If the organ were enlarged or hardened by the disease, it might perhaps be felt upon examination, at least in emaciated subjects. It would be very likely to disorder the functions of the stomach.

The accuracy of our diagnosis in such a case, would be of no great importance, as it would require only the common treatment of inflammation; which it is unnecessary therefore to again particularize.

FOREIGN DEPARTMENT.

THERAPEUTICS.

On the use of Belladonna as a Prophylactic in Scarlatina. (Rust's Magazin, fur die gesammte Heilkunde, xx vol. p. 182).

SEVERAL notices have been published of late, particularly in German journals, regarding the prophylactic virtues of the extract of belladonna in epidemics of scarlatina. The following experiments made at the orphan hospital of Langendorf in Prussia, by Dr. Randhahn, physikus of the place, is one of the strongest facts in favour of the alleged property. In one of the apartments of the hospital two children were attacked by scarlet fever, in February 1825, and 160 others were exposed to it. A solution of three grains of the extract of belladonna in an ounce of a vinous infusion of cinnamon, was given to each in small doses, during the whole month of February. Up to the 21st of April, when the report was made by the physician, not a single case had occurred among them, and even two who lived in the same chamber with those affected did not suffer.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held on June 30th, Sir WILLIAM S. CHURCH, Bart., K.C.B., the President, being in the chair.

The PRESIDENT announced the following nominations to lectureships for 1905: Dr. W. C. Bosanquet as Goulstonian lecturer; Dr. W. H. Allchin as Lumleian lecturer; Dr. Norman Moore as FitzPatrick lecturer; Dr. Leonard E. Hill as Oliver-Sharpey lecturer; and Dr. W. H. R. Rivers as Croonian lecturer.

Licences to practise were granted to two candidates (Mr. Eric Gardner and Mr. George Alick Soltau).

Communications were received from: 1. The General Medical Council, containing resolutions of the Council with regard to preliminary scientific education and examination and rules with regard to diplomas in public health, both adopted in May last. This was referred to the committee of management. 2. The secretary of the Royal College of Surgeons of England, reporting certain proceedings of the Council on May 12th. This was received and entered on the minutes. 3. The same, reporting certain proceedings of the Council on June 9th, communicating also a report of a special committee on the question of instituting a diploma in tropical medicine and inviting this College to a conference on the subject. This was agreed to, the nomination of representatives being left to the President.

Reports were also received from the laboratories committee, the committee of management, and from the

[1] Excerpt from Lecture No. XXXI. on the Theory and Practice of Physic delivered by Dr. Clutterbuck in the Theatre, General Dispensary, Aldersgate-street.

examiners for the Licence on the results of the examinations in April last.

It was agreed that the following institutions should be added to the list of those recognised by the Examining Board in England for instruction in chemistry, physics, and practical chemistry: Institute of Science and Art, Leeds, Oundle School, and Highgate School. It was also agreed that the North-Eastern Hospital for Children should be recognised as a place of study during the fifth year under the conditions of clause 10, paragraph xxi., section ii., of the regulations.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8643 births and 3953 deaths were registered during the week ending July 2nd. The annual rate of mortality in these towns, which had been 14·2, 13·8, and 13·2 per 1000 in the three preceding weeks, increased again last week to 13·5 per 1000. In London the death-rate was 12·9 per 1000, while it averaged 13·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 5·1 in Tottenham, 6·1 in Leyton, 7·0 in Handsworth (Staffs.) and in King's Norton, 7·1 in Hornsey, 8·2 in Reading, 8·5 in East Ham, 8·6 in Northampton, and 8·7 in Newport (Mon.); while the highest rates were 17·7 in Liverpool and in Bootle, 18·1 in Hull, 19·0 in Manchester and in Newcastle-on-Tyne, 20·0 in Great Yarmouth, 20·3 in Huddersfield, 21·6 in Wigan, and 22·8 in Hanley. The 3953 deaths in these towns last week included 455 which were referred to the principal infectious diseases, against 492, 487, and 444 in the three preceding weeks; of these 455 deaths, 180 resulted from measles, 102 from whooping-cough, 82 from diarrhœa, 44 from diphtheria, 25 from scarlet fever, 16 from "fever" (principally enteric), and six from small-pox. No death from any of these diseases was registered last week in Willesden, Hastings, Southampton, Reading, Handsworth (Staffs.), Aston Manor, Bury, Rotherham, Tynemouth, or Newport (Mon.); while the highest death-rates from the principal infectious diseases were recorded in Brighton, Great Yarmouth, Hanley, Birkenhead, Bootle, Manchester, Salford, Huddersfield, Newcastle-on-Tyne, and Rhondda. The greatest proportional mortality from measles occurred in Brighton, Hanley, Birkenhead, Liverpool, Bootle, Manchester, Salford, Huddersfield, Leeds, Hull, and Rhondda; from scarlet fever in Bootle; from diphtheria in Hanley, West Hartlepool, and Rhondda; and from whooping-cough in Great Yarmouth, Grimsby, and York. The mortality from "fever" and from diarrhœa showed no marked excess in any of the large towns. Of the six fatal cases of small-pox registered in these towns last week two belonged to Gateshead, two to Newcastle-on-Tyne, one to London, and one to Oldham. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had been 95, 80, and 83 at the end of the three preceding weeks, had declined again to 74 at the end of last week; 10 new cases were admitted during the week, against 21, seven, and 16 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday last, July 2nd, was 1631, against 1647, 1630, and 1629 on the three preceding Saturdays; 254 new cases were admitted during the week, against 193, 206, and 199 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 157, 142, and 141 in the three preceding weeks, rose again last week to 146, but were 19 below the number in the corresponding period of last year. The causes of 35, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Salford, Leeds, Hull, Newcastle-on-Tyne, and in 54 other smaller towns; while the largest proportions of uncertified deaths were registered in Liverpool, Bootle, St. Helens, Manchester, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·2, 17·0, and 15·9 per 1000 in the three preceding weeks, rose again to 16·3 per 1000 during the week ending July 2nd, and was 2·8 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·8 in Perth and 13·0 in Leith, to 18·4 in Aberdeen and 20·2 in Greenock. The 539 deaths in these towns included 31 which were referred to whooping-cough, 18 to diarrhœa, 14 to measles, four to scarlet fever, three to diphtheria, three to "fever," and two to small-pox. In all, 75 deaths resulted from these principal infectious diseases last week, against 73, 66, and 74 in the three preceding weeks. These 75 deaths were equal to an annual rate of 2·3 per 1000, which was 0·7 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 21 and 27 in the two preceding weeks, further rose last week to 31, of which 14 were registered in Glasgow, eight in Edinburgh, four in Dundee, and four in Paisley. The deaths from diarrhœa, which had been 24, 20, and 22 in the three preceding weeks, declined again to 18 last week, and included eight in Glasgow, four in Aberdeen, and two in Dundee. The fatal cases of measles, which had been 16, 14, and 12 in the three preceding weeks, rose again last week to 14, of which five occurred in Edinburgh, four in Glasgow, two in Dundee, and two in Aberdeen. The deaths from scarlet fever, which had been two in each of the two preceding weeks, increased last week to four, all which were registered in Glasgow. The fatal cases of "fever," which had been two and four in the two preceding weeks, declined again to three last week and included two in Dundee. The deaths from small-pox, which had been three, three, and one in the preceding weeks, rose again last week to two, both of which belonged to Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 68, 93, and 64 in the three preceding weeks, rose again last week to 80 but were six below the number in the corresponding period of last year. The causes of 26, or nearly 5 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·3, 21·7, and 19·5 per 1000 in the three preceding weeks, further declined to 16·5 per 1000 during the week ending July 2nd. During the 13 weeks of the quarter ending on that date the death-rate has averaged 21·7 per 1000, the rates during the same period being 14·8 in London and 17·2 in Edinburgh. The 120 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 22 from the number in the preceding week and included seven which were referred to the principal infectious diseases, against four, six, and three in the three preceding weeks; of these, two resulted from measles, two from scarlet fever, one from diphtheria, one from whooping-cough, and one from diarrhœa, but none from either small-pox, or "fever." These seven deaths were equal to an annual rate of 1·0 per 1000, the death-rates last week from the principal infectious diseases being 1·5 in London and 2·4 in Edinburgh. The 120 deaths in Dublin last week included 21 among children under one year of age and 29 among persons aged 60 years and upwards; the deaths of infants were slightly in excess of the number in the preceding week, while those of elderly persons showed a marked decline. Three inquest cases and three deaths from violence were registered; and 53, or more than two-fifths, of the deaths occurred in public institutions. The causes of four, or more than 3 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified: Staff Surgeon: H. Huskinson to the *Vivid* for Pembroke Dockyard (dated June 22nd). Surgeon: A. T. Wysard to the *Albion* as Interpreter in German.

ROYAL ARMY MEDICAL CORPS.

Lieutenant G. F. Rugg, Lieutenant J. Fairbairn, Lieutenant J. A. Turnbull, Lieutenant R. B. Hole, Lieutenant M. F. Grant, Lieutenant H. Harding, and Lieutenant A. A. Meaden proceed to Woolwich for duty

Major J. R. Mallins, on arrival home from Halifax, N.S., has been posted to Portsmouth for duty. Lieutenant F. M. M. Ommanney has been appointed medical officer with the 6th (Somaliland) Battalion Royal African Rifles.

Lieutenant-Colonel A. P. O'Connor, C.B., now at Gibraltar, has been appointed Principal Medical Officer, 3rd Division, First Army Corps.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major F. K. Pigott to be Surgeon-Lieutenant-Colonel (dated June 21st, 1904). Brigade-Surgeon-Lieutenant-Colonel W. P. Whitcombe, Worcester and Warwick Volunteer Infantry Brigade, to be Surgeon-Major (dated July 6th, 1904). Surgeon-Lieutenant L. A. Avery, Suffolk Imperial Yeomanry, to be Surgeon-Lieutenant (dated July 6th, 1904). Surgeon-Major E. J. Hunter to be Surgeon-Lieutenant-Colonel (dated June 14th, 1904).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Captain J. E. O'Connor resigns his commission (dated July 2nd, 1904). Supernumerary Lieutenant S. G. McAllum to be Captain (dated June 4th, 1904).

IMPERIAL YEOMANRY.

South of Ireland: The appointment of Surgeon-Lieutenant F. F. MacCabe bears date July 30th, 1903.

VOLUNTEER CORPS.

Rifle: 2nd Volunteer Battalion the Highland Light Infantry: Surgeon-Captain W. Sandeman to be Surgeon-Major (dated July 2nd, 1904).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Aberdeen Company: Major J. MacK. Booth resigns his commission with permission to retain his rank and to wear the prescribed uniform (dated July 2nd, 1904).

THE ARMY APPEAL BOARD.

Mr. Arnold-Forster has informed Captain Norton that after every medical examination of candidates for commissions in the army numerous representations are made on behalf of those rejected, supported by medical certificates. It was therefore considered expedient to institute an Appeal Board the decision of which should be final. The number of candidates examined since its inception is 234 and the cost of public money spent in fees has been £982 16*s*. The Army Council does not propose to abolish the Board at present but the matter is one of importance and is receiving consideration.

THE WAR IN THE FAR EAST.

Owing to the advent of torrential rains, the topographical difficulties of the country, which have been thereby greatly increased, and the possible insufficiency of land transport there has been a comparative lull in the military operations in the Far East. There has consequently been but little to record during the past week, the latest news being the reported repulse of the Russian attack on Mo-tien-ling Pass. From the side of the sea we learn that a portion of the Vladivostock fleet made an unimportant raid outside and again escaped Admiral Kanimura's squadron. As regards Port Arthur, its land investment seems to be complete but whether its capture by assault will be soon attempted or not we do not yet know for certain. The general line of the Japanese army may be described as extending diagonally from south-west to north-east along the line of railway to Mukden. The report of the Japanese having abandoned the Taling Pass proves to be unfounded. A Reuter's telegram emanating from General Kuropatkin's headquarters states that the Japanese have at length occupied the Mo-tien-ling Pass without opposition, much to the surprise of the foreign attachés who were amazed at seeing three formidable lines of earthworks abandoned without even a show of resistance. This abandonment was, as suggested, no doubt due to fears on the part of the Russians for their line of retreat. The dominating part which the Japanese artillery has played throughout the war and the skill with which it has been handled have been freely acknowledged by the Russians. Considering the heavy rains and the sodden condition of the soil the unfortunate soldiers in the field on both sides have been subjected to considerable exposure and hardship which must, we should think, be telling gravely upon their health and efficiency; of this we hear but little, however, at present. We learn from Russian sources that much cholera prevails among the Japanese troops but of the truth of this we are somewhat sceptical. That the amount of inefficiency attributable to sickness among the troops in the field is considerable cannot be doubted and it is most probably largely in excess of the loss occasioned by wounds in fighting. It will be remembered that the Russians recently brought some serious charges of cruelty against the Japanese which the latter have since not only indignantly repudiated but have advanced counter-charges of the treatment which their wounded had met with at the hands of the Russians, in spite of which the Russian wounded picked up by the Japanese had, they allege, been kindly treated. Criminations and recriminations of this nature are usually found to be barren of any good purpose; when the facts are carefully investigated they generally turn out to have been either exceptional, exaggerated, or even without any foundation. Those of our readers who are interested in the organisation of the Japanese army and its medical corps should consult an article on "Japan at War" by Colonel E. Emerson in the *Contemporary Review* for the present month for a brief account thereof, and as regards the medical services in the Russian army (peace) we may direct attention to a paper by Lieutenant-Colonel J. Hickman, R.A.M.C. (retired pay), in the *Journal of the Royal Army Medical Corps* for July.

The *Sphere* of July 2nd contains some excellent reproductions of photographs relating to medical matters in connexion with the war. There is a panoramic view of the hospital court-yard crowded with Japanese wounded at Antung immediately after the Yalu battle, stretcher-bearers carrying a wounded Russian, and a representation of a Japanese field hospital with operation table, operator, and assistants. Portraits of the medical men and nurses of the Russian Society of St. George are also given together with an illustration of a Russian hospital equipment on the shores of Lake Baikal.

In the wagon-building shops of the Kasan Railway the fitting up of the wagons for the circulating laboratory and room for live animals, such as guinea-pigs, is proceeding actively. Accommodation for the staff and disinfecting rooms is afforded in separate wagons. The specific object of this train is to combat infectious disease. In the same workshop there is in course of preparation a train to carry ice-making machinery and ice safes, with the necessary apparatus and accessories, all to go forward to the seat of war when ready, which will be in a few days. The *Novosti* announces that at the military medical factory the fitting up of the interior of the chemico-bacteriological laboratory is almost finished. The laboratory will be devoted to testing muslin, wool, textiles, and other materials entering into the preparation of antiseptic bandaging which the factory supplies to the whole army.

LEPER CAMPS IN RUSSIA.

The Military Medical Executive has undertaken the construction of a series of leper camps in the Don, Kouban, and Tver districts to deal with the disease in the respective localities.

Correspondence.

"Audi alteram partem."

THE APPEARANCE OF BACTERIA IN NORMAL ORGANS AND THE SIGNIFICANCE THEREOF.

To the Editors of THE LANCET.

SIRS,—That the blood of healthy animals possesses (1) marked bactericidal properties and (2) that the internal organs of healthy animals are free from living germs have long been cardinal tenets of modern bacteriology. These views owed their origin to the work and writings of Pasteur, Lister, Duclaux, and others. Still from the time of their first enunciation up to the present day doubts have ever and anon arisen as to the correctness of the latter conclusion and a long series of experiments and observations have been made by numerous investigators bearing upon this all important question. The last of these investigations appears in your columns for July 2nd, p. 21, in which the writer, Mr. H. de R. Morgan, details the results of careful work carried on in the Lister Institute upon the organs of different animals dealt with in ways which he fully describes. He

considers himself entitled to come to the following conclusions: "1. That normal organs do not contain pathogenic bacteria. 2. That the presence of non-pathogenic organisms in the cultures is probably due to accidental contamination." He thinks, in fact, that in spite of all the precautions taken common organisms from the air had "fallen on the surface of the organs during some part of the manipulations."

His experiments were made in consequence of a previous careful and elaborate investigation made by W. W. Ford[1] of Montreal, carried out in the laboratory of Professor Adami. Ford came to the conclusion "that at least 70 per cent. of the internal organs of our ordinary domesticated animals contain bacteria which are capable of development provided a sufficient time be allowed to elapse between the removal of the organs and their final examination." Ford felt positive that in his experiments, owing to the great care taken, bacteria "were not introduced from without by careless manipulation of instruments or media." And the fact should not be lost sight of that many years ago a similar conclusion was arrived at by the present distinguished president of the Pathological Society of London. Writing in 1878[2] Sir J. Burdon Sanderson, after detailing his own investigations, conducted with every precaution, spoke as follows: "Under the conditions I have described to you it seems to me quite impossible to suppose either that germs could penetrate to the organ from the outside or that any germ encountered by the organ in its transit from the body of the animal to the basin could escape destruction. If, therefore, bacteria be found they or their germs *must have been there before the organ was plunged into the hot liquid*.[3] ..... The result of all the experiments, whether with liver or kidneys, was the same. The soft red kernel of uncooked tissue at the middle of the organ always contained bacteria the vigorous development of which was indicated by their large size, countless numbers, and active movements. To my mind the experiment is conclusive." Seeing that very similar results had also been obtained by other workers previous to 1878 it is not a little remarkable that Morgan should have been content to assume that mere surface contamination could have accounted for his numerous positive results. Even if he had ignored, or been unaware of, these earlier investigations, there was the statement of Ford before him that bacteria were found, on microscopical examination, in the interior of various of the organs dealt with.

The experiments of Burdon Sanderson do not seem open to question. The method employed by him of dropping the organs into superheated paraffin seems, indeed, likely to lead (as it did) to more uniform results than the method employed by Morgan and Ford. The former says the organs were "quickly passed through the flame of a Bunsen burner," while the latter is rather more explicit and says that the organs were "cooked in the flame until the surface had been thoroughly scorched to a greyish brown" colour. Internal portions of the organs may have been, at times, too much "cooked" by such a process and this may have led to the absence of organisms in a varying percentage of their experiments. Where organs of some size are used, another method employed by some experimenters is, I think, also thoroughly trustworthy for getting rid of all surface contamination, and yet very simple. I mean the dropping of the organs for a certain number of hours into a 2 per cent. solution of chromic acid, so that the acid may penetrate and colour the whole external portions of the organs for a depth of about one-fourth of an inch. After four hours or so the protected organ may be transferred to a closed sterilised vessel, and submitted to incubating heat for a number of days varying according to the temperature employed. Subsequently the red, unstained tissue in the central parts of the organs will be found to swarm with bacteria.

The fact that bacteria can thus be made to appear in swarms in normal organs has been thoroughly proved. There is no more room for doubting it now than there was when Burdon Sanderson wrote in 1878. The question of *the interpretation of such results* is doubtless one of great difficulty to many and will never be solved till investigators are willing to look *all* the facts in the face with minds perfectly open and ready to draw the most warranted conclusions—irrespective of all antecedent notions. It seems necessary to make so trite a statement because there is in the minds of most bacteriologists a foregone conclusion that bacteria cannot arise *de novo*. This conclusion has been based upon the conflicting results of flask experiments and the consequent rejection of all evidence tending to show that they can arise by archebiosis. The question of the *de novo* origin of bacteria by heterogenesis seems never to be seriously considered by bacteriologists. They for the most part persistently ignore such a possibility.

We find ourselves, however, in this position. Bacteria have been shown to be capable of appearing in the organs of healthy animals notwithstanding all early beliefs to the contrary. But unless we can conclude that bacteria must be capable of arising *de novo* in the cells of such organs after the death of the animal to which they belonged their discovery in such situations would be in flagrant contradiction with the two doctrines which I have referred to at the commencement of this letter as cardinal tenets of modern bacteriology. Their presence would tend to stultify the doctrines and work of Lister and all the beneficent life-giving results which have followed therefrom. How ludicrous would be all the talk and work concerning the production of asepsis if all internal organs and tissues are *during life* permeated by germs of micro-organisms. Do not the modern results of the work of skilled surgeons in all civilised countries tend to show that no such permeation exists? Organisms in abundance obtain entry to the alimentary tract and to the air passages, but how are they to be disseminated to all the organs and tissues of the body if the blood is endowed with the bactericidal qualities which it is commonly said to possess? The supposed existence of such an endowment would be shown to be an error if bacteria could be proved to exist *during life* in the organs of healthy animals as some would have us believe.

The only other means (apart from the agency of blood-vessels and lymphatics) of accounting for the dissemination of bacteria through the body is the supposition which was favoured in 1878 by Burdon Sanderson—namely, that they are, even in healthy animals, capable of passing through the walls of the alimentary canal and thereafter wandering into this or that contiguous organ, such as the spleen, the liver, or the kidney. Apart from the fact that such a supposition (at the time supported by no independent evidence) is at variance with the more recent work of Opitz and Welch it in no way suffices to explain existing difficulties. It is certain, for instance, that recognisable bacteria are not to be found in such organs of healthy animals immediately after death. It is further known that when later they do appear they show themselves first as mere minute motionless particles which subsequently take on typical bacterial forms. *But in the germ stage all these organisms are motionless.* How can it be supposed, therefore, that such motionless germs can make their way not only through the intestinal canal but into this or that abdominal organ and even into all the individual cells of such an organ? In proof that they may be so found I have shown[4] what occurs when a healthy sheep's kidney is treated in the manner I have indicated by soaking first in 2 per cent. chromic acid and then transferred to a sterilised vessel at about 25° C. for three or four days. In such an organ every section revealed "inside the area which had been affected by the chromic acid that almost every cell within the renal tubules was full of developing or actually developed bacteria. The former appeared as mere cocci-like particles which had taken the stain like the developed bacteria—both being situated in the midst of cell granules comparatively unstained." (Photographs that are given of the sections show the distribution of the bacteria to be as above indicated.)

Such facts seem incapable of receiving any rational explanation apart from the conclusion that the organisms found had arisen *de novo* after death in the previously healthy organs. Their appearance within almost every epithelial cell of the kidney is just what might be expected if they had taken their origin there by heterogenesis. What stands in the way of such a conclusion? A preconception—nothing more. On the other hand, apart from heterogenesis, the presence of bacteria in such organs could only be accounted for by one or other of the two suppositions to which I have referred. Either (1) by the self-contradictory notion that *motionless germs* are habitually passing through the intestinal walls and wandering into this or that organ, there to remain in a "latent" condition; or (2) by the admission that

[1] Journal of Hygiene, vol. i., 1901, p. 277.
[2] Brit. Med. Jour., vol. i., p. 119.
[3] Italics not in the original. It will be seen that there are grave reasons for doubting the validity of this view.
[4] Studies in Heterogenesis, 1904, pp. 308-312.

all that has been said concerning the bactericidal properties of the blood has been a false and mistaken notion. Either of these attempted explanations would, moreover, be equally at variance with the doctrines of Lister and the beneficent practice which he initiated. Such suppositions are, in fact, condemned by the life-saving results of his practice. Had either of the above attempted explanations of the fact that bacteria can be made to appear at will within the tissue elements of previously healthy organs been true—explanations, that is, which suppose that such organisms or their germs exist as such during life in the organs of healthy animals—then, as I have already indicated, the efforts to procure asepsis, as now practised by surgeons all over the civilised world, would be solemn but unreasoning mockeries and nothing else.—I am, Sirs, yours faithfully,

H. CHARLTON BASTIAN.

Manchester-square, W., July 4th, 1904.

IN THE MATTER OF THE TAMWORTH TOWN COUNCIL.

To the Editors of THE LANCET.

SIRS,—My attention has just been drawn to some remarks you make in your issue of June 18th relative to the Tamworth town council and its medical officer's report. Perhaps you will permit me to say that your remarks show that the information you have received, and upon which you have based your remarks, is *absolutely incorrect* and *misleading*, and has no doubt been supplied to you from some "official" source with the view of using *your* weighty *opinion* to bolster up the official's cause. At the time I moved the resolution in the council—"That the medical officer's report be submitted to the chairman of the sanitary committee before being printed"—I had no wish, as I explained to the council at the time, to in any way *revise* or *alter* the report *and the medical officer has never been asked by the council or the mayor* to *omit* anything from his report. The chairman of the sanitary committee, I believe, did suggest some alteration in the manner or the language in which the doctor had expressed his views on some very minor matter but no attempt whatever was made, as you suggest, to get the doctor to alter or omit anything from his report that would in any way conceal anything from the Local Government Board or county council; in fact, the present Mayor of Tamworth and his friends on the council will be very glad if the medical officer of health will wake up a bit and send in his reports at the proper time and not three or four months after date and after repeated requests for the same from the authorities you quote; also they will be grateful to him if he will show up all the weak spots in the *sanitary state* of the town and not devote so much space in his reports to ornithological essays, &c. The present Mayor of Tamworth and his friends are doing, and intend to do, all in their power to push on with a thorough policy of sanitary reform including an up-to-date system of sewerage and sewage disposal. Perhaps you will also permit me, too, to suggest to you the advisability of ascertaining that any information sent to you from Tamworth is correct before you proceed to criticise adversely the doings of the Tamworth town council or its mayor. The Tamworth people know more about Tamworth's requirements than does the Editor of THE LANCET and also they know who are the most likely men to study their interests. They also know that if any apology is due to anyone it is due from the doctor to the sanitary committee for the wanton and unnecessary manner in which he insulted it. Finally, I would like just to say that the mayor of Tamworth has the support of the majority of the ratepayers of the borough in his praiseworthy efforts to rescue its management from the hands of the "officials" who for the last 20 years have exercised their ingenuity in looking after number one with the most baneful effect on the public spirit of the town. The present mayor, by his great administrative ability and strict economy, has been able to reduce the rates of the borough in three years from 8*s.* 1*d.* in the pound to about 6*s.* 5*d.* without sacrificing efficiency in the slightest degree, thus making it possible to carry out a scheme of sewage disposal and many other greatly-needed measures of reform.

I am, Sirs, yours faithfully,

Hill Crest, Tamworth. T. B. ALLKINS.

*** We received this letter last week too late for insertion. We publish it in spite of its futility. Our article, stated by Mr. Allkins with genial observance of the ordinary courtesies of life to be "absolutely incorrect and misleading," pointed out that it was well that the medical officer of health of Tamworth had obeyed the law and submitted his report to the Local Government Board instead of allowing it to be supervised by the Tamworth town council. In consecutive sentences Mr. Allkins says (1) that he moved for the medical officer's report to be submitted to the chairman of the sanitary committee before being printed, having no wish that the report should be revised and altered; and (2) that the chairman of the sanitary committee suggested alterations. It seems to us that those alterations would probably have been made if the wrongful opportunity had been given. The present mayor of Tamworth and his friends may have all the admirable sanitary intentions with which Mr. Allkins credits them (presumably Mr. Allkins is one of the friends), but this will not alter the fact that the public health of this country has to be carried out by the people appointed under the Acts of Parliament and in accordance with those Acts. A well-intentioned mayor is not necessarily an expert sanitarian and to be the friend of a mayor is not to be in possession of a diploma in public health. We could not have desired a fuller confirmation of the correctness and accuracy of our views, when dealing with the situation at Tamworth, than Mr. Allkins supplies.—ED. L.

THE SILICO-FLUORIDES IN OTORRHŒA.

To the Editors of THE LANCET.

SIRS,—A few weeks ago you kindly published a letter in which I brought forward the value of otectomy and the silico-fluorides in the treatment of otorrhœa. In the interests of my crusade against the lamentable ignorance so often exhibited in regard to this disease I may perhaps be allowed to allude to three cases that illustrate the dangers that threaten the unchecked course of suppurative otitis. They were admitted to the Coventry Hospital at the beginning of last week. Case 1, aged four years, who had been under occasional medical treatment for otorrhœa, was sent in for meningitis. The child was in a semi-comatose condition with a high temperature. A slight discharge came from the right ear and from a sinus behind the ear. The temporo-sphenoidal lobe was searched without much result. The bone exposed was greenish in hue. The child died on the third day. Case 2, aged 12 years, had been under medical care for three years for a "running ear." There had been intense pain, but the case was not sent to us until there were rather alarming symptoms. The temperature was about 103° F. and the child looked very ill indeed. There was a sinus behind the ear. Otectomy was performed and the antrum was opened, diseased bone being removed. The case is now doing well. Case 3, aged seven years, was sent in for otorrhœa. This middle ear was full of growths, the discharge being foul—a dangerous condition from which the patient was relieved by otectomy and is doing well.

I ask, Sirs, if the above cases admitted at a small hospital within a few hours of each other do not justify a protest against the prevailing indifference with regard to "running ears." Almost every week I see cases that bear witness to neglect or inefficient treatment. Yet it is certain that such cases can almost always be cured by proper treatment.

I am, Sirs, yours faithfully,

Coventry, July 1st, 1904. F. FAULDER WHITE.

THE AGGLUTINATION REACTION IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if any of your readers could inform me whether they have ever observed such a peculiar feature of the reaction as I am about to describe. The serum from two patients suffering from some disease, which clinically resembled typhoid fever, produced a most remarkable effect on an emulsion of active typhoid bacilli. When the serum was added to the bacilli in the proportion of 1–20 they were found to become much more actively motile. In fact, I have never seen such an extreme degree of motility a

occurred in these reactions. I have employed the agglutination reaction with various micro-organisms in several hundred cases both in man and animals, but I have only met with such a condition in the cases already referred to and have not seen it recorded in the literature.

I am, Sirs, yours faithfully,

LEONARD S. DUDGEON,
July 6th, 1904. Superintendent of the Clinical Laboratory, St. Thomas's Hospital.

PROPOSED TESTIMONIAL TO DR. EYRE.

To the Editors of THE LANCET.

SIRS,—In August, 1903, Dr. J. Eyre was investigating some points in the biology of the micro-organism of Malta fever in the bacteriological laboratory at Guy's Hospital when he accidentally inoculated himself with this micro-organism. A few days afterwards he developed an attack of Malta fever, causing incapacity for work for six weeks. As he was insured in a company against accidents and several diseases, including septicæmia, he made a claim under his policy. As he had been given to understand by the agent who induced him to take out the policy that it included accidental bacterial infections, contracted in his laboratory, he was astonished to find his claim repudiated. Acting on the advice of counsel Dr. Eyre insisted on his claim, and the dispute, owing to a clause of the policy, had to be decided, not publicly in court but by private arbitration. The decision of the arbitrator was in favour of the company. This decision is, I think, one of great importance to members of the medical profession who hold accident policies. Dr. Eyre's costs for the arbitration amount to some £140 and it is thought by many of his friends, amongst whom I count myself, to be a fitting opportunity to present him with a testimonial in order to assist him in meeting these costs. Cheques may be sent addressed to me at Guy's Hospital.

I am, Sirs, yours faithfully,

J. H. BRYANT.

Manafield-street, Portland-place, W., July 7th, 1904.

*** Dr. Bryant incloses a list of subscribers of sums varying between £3 3*s.* and 10*s.* 6*d.*, showing that the medical profession are recognising the hardship which Dr. Eyre has undergone. The circumstances will be found in detail in THE LANCET of June 25th, p. 1811. We shall publish the list of subscribers next week.—ED. L.

ACCIDENTAL VACCINIA OF THE NASAL CAVITY.

To the Editors of THE LANCET.

SIRS,—Mr. W. H. Bowen's account of a case of the above in THE LANCET of July 2nd, p. 20, exactly describes a case I had some years ago, except that in my case I found a well-marked vesicle inside the ala nasi. Shortly afterwards I had a similar case in which the vesicle appeared on the lower lip. Both were women and no trouble ensued.

I am, Sirs, yours faithfully,

Stonebroom, Alfreton, July 5th, 1904. R. M. H. WALFORD.

IN THE MATTER OF PATENT MEDICINES.

To the Editors of THE LANCET.

SIRS,—I should be greatly obliged if you could give an authoritative answer to the following questions. May a medical man if he knows the composition of any *patented* proprietary article prescribe its exact formula so as to have it made up as an ordinary prescription or is a hospital dispenser legally entitled to make up any proprietary article of which he can discover the formula or composition? If the general answer to these two is in the affirmative would the answer also be in the affirmative if the article in question could only be made by special patented *process?*

I am, Sirs, yours faithfully,

July 4th, 1904. INQUIRER.

VACCINATION GRANTS.—Mr. J. D. Staple, public vaccinator of the Ashley district of the Bristol union, has been awarded the Local Government Board grant for successful vaccination for the fourth consecutive year.—Dr. A. W. Woodman Dowding has obtained the grant for successful vaccinations in the St. Newlyn East district of Cornwall.

THE INTERNATIONAL HEALTH OFFICE.

PROGRESS AND MODIFICATION OF THE PROJECT.

(BY OUR SPECIAL SANITARY COMMISSIONER.)

Paris, July 4th.

AT the last official International Sanitary Conference which met off and on in Paris from Oct. 10th to Dec. 3rd, 1903, a resolution was adopted in favour of constituting a permanent International Sanitary Office. This proposal, as related at the time, was not unanimously approved and the representatives of the British Government notably made some reservations. Since then there has been time for reflection, for a further exchange of views, and for a better understanding of the project. The idea has been ripening and within the last few days a distinct step forward has been taken. On the other hand, there has been no undue haste. For more than half a century various governments of Europe have held international conferences on sanitary matters. There have been in all 11 such official gatherings and it cannot be said that they have overburdened the world with proposals, schemes, and projects of legislation. The first conference met at Paris in 1851 and 12 nations were represented; the last conference met in 1903, also at Paris, but there were no less than 24 nations and governments represented. The earlier conferences were more like scientific gatherings. The governments were represented by diplomatists who held a sort of watching brief while men of science discussed. Motions were carried and pious wishes were expressed. This sort of platonic procedure prevailed at the conferences held in 1851 at Paris, in 1859 at Paris, in 1866 at Constantinople, in 1874 at Vienna, in 1881 at Washington, and in 1885 at Rome. At Vienna in 1892 a considerable change took place. Europe was then menaced with the cholera and now the representations of the various governments began to take action. Conventions were signed and the conference met again the next year at Dresden and again, the year following (1894) at Paris. Later, in 1897, the tenth International Official Conference was held at Venice and this time for the purpose of drawing up an international convention in regard to the precautions which were to be taken to prevent the spread of plague. Thus out of 11 conferences only the last five have resulted in the signing of international treaties and agreements. It may be said that, while the first conferences met to discuss theories and to study sanitary problems, this task has of late years been relegated entirely to the international medical and sanitary congresses. The official conferences, therefore, now meet, not to discuss theories, but to legislate; the debates relate to the regulations that it may be thought wise and possible to impose and to the international conventions that are necessary for such purpose. So far the object of such understanding was to prevent the spread of disease from one nation to another while at the same time striving to reduce the inconvenience of such precautions, notably of quarantines, to the lowest possible degree.

These various agreements were grouped together and codified at the conference held in Paris last year. The new convention thus drawn up, which codifies and ratifies all the previous agreements, bears the date of Dec. 3rd, 1903, and is divided into six chapters with 184 clauses or articles. But this international convention of 1903 not only codifies, it also modifies the measures to be taken so as to bring them in harmony with the more recent discoveries of science. For instance, it is now believed that the period of incubation for plague is only five days, so that the period of observation of the passengers coming from a ship where there has been cases of plague on board has been reduced from ten to five days. Also it is now no longer necessary in such a case to retain the passengers in quarantine for these five days: they can be allowed to proceed if they are going to a place where there is a competent sanitary administration which can keep them under efficient observation. Then, again, according to the Venice Convention, every government had to notify to all the governments which had signed the convention whenever a case of plague occurred. But if this case came from abroad and the disease did not spread to inhabitants of the country then it was not necessary to take any measures against the district in question. In practice many authorities failed to notify the first case and only

notified other cases when public rumours rendered concealment impossible. Now that the text is modified the fact is made more clear that no measures will be taken against a port if there should arrive in that port a case of plague or of cholera but nevertheless the case must be notified internationally. It is only in the event of the disease gaining ground and spreading among the general population of the port that precautions will be taken against ships coming from that port. Then greater care is to be taken in defining a district; for instance, if a case of cholera were to occur at Hampstead that would not be a reason for considering the port of London as contaminated. Such are some of the points raised and modifications made and accepted. All this, it will be seen, is ancient history with a few modern modifications. The absolutely new proposal was that of establishing an international sanitary office which might render the same services to the whole of the civilised world as are rendered by the Imperial Sanitary Institute of Berlin to the whole German Empire.

The suggestion was handed over to the committee of the Conference appointed to consider ways and means. This committee submitted to the Conference a report and motion on the subject. The report first insists on the growth of the feeling in favour of moral and social union between the different nations in the pursuit of the highest humanitarian ideals. In so far as sanitation is concerned the creation of a central bureau would be a step in this direction. It would constitute a sort of observatory from which the march and development of epidemics could be watched and recorded. The office also would collect all possible information in regard to such illnesses and the measures that are taken or ought to have been taken. It would be a central depôt of information but the reporters were careful to add that it could not possess any power to interfere with the internal affairs of the different countries. Its influence would be purely a moral influence. The committee's report concluded by making the following proposals:—

International Health Office.—I. An international health office is created according to the principles which governed the formation and the working of the international bureau on weights and measures. This bureau will have its headquarters at Paris.

II. The mission of the international office will be to collect information on the course followed by infectious diseases. For this purpose it shall receive the information which will be communicated to it by the superior health authorities of the participating states.

III. The office shall periodically set forth the results of its labours in the official reports that shall be communicated to the contracting governments. These reports shall be made public.

IV. The office shall be maintained by contributions from the contracting governments.

V. The government on whose territory the International Health Office is to be established shall be entrusted with the preparation within three months after the signature of the acts of the conference of a set of rules for the installation and the working of this institution and the submission of these rules to the approbation of the contracting states.

When this report and this motion were read out the PRESIDENT of the conference, M. Camile Barrère, ambassador of the French Republic at Rome, asked whether any of the delegates present had any observations to make and then declared that as no one had spoken the report and its conclusions were adopted. Then so as to sum up the matter in a diplomatic form and to facilitate the drafting of the future Convention the President read out the following text:—

Re International Health Office.—The conference, taking note of the conclusions of the committee of ways and means in regard to the creation of an International Health Office at Paris, leaves to the French Government the care of presenting for that purpose and through diplomatic channels when it shall judge opportune propositions to the states represented at the conference.

As no one desired to speak or raised any objection the PRESIDENT declared that this latter text was also adopted and became Article 181 of the Convention of Dec. 3rd, 1903. When, however, it came to the signing of this convention Count VON GROEBEN, the premier German delegate, read out the following declaration:—

While authorising the German delegates to sign the convention the Imperial Government instruct them to make the following statement: 3rd Art. 181 and Annexe III. "The Imperial Government renews the reservations made by its delegation in the committee on ways and means with regard to such an institution."

M. DE BUNSEN, premier delegate for Great Britain, said: While authorising the delegates of Great Britain to sign the Convention His Britannic Majesty's Government instructs them to make in its name the following declaration:—

In regard to the question of an International Health Office (Art. 181 and Annexe III. of the Convention) His Majesty's Government renews the reservations made by its delegation in the committee of ways and means in respect to the utility of such an establishment.

M. DE SUZZARA, the Austro-Hungarian delegate, made similar reservations.

As mentioned at the time in THE LANCET the fact that the British Government had made reservations occasioned considerable disappointment and surprise. It is probable that the reasons were not fully stated at the time. Indeed, it is easy to understand that there might be reasons which could not be given officially at such a conference. But these might be talked over unofficially and individually afterwards. Such conversations of a totally unofficial character have taken place and as a consequence it is hoped that some misapprehensions have been removed. M. Henri Monod, the author of the proposal and chief of the sanitary services at the French Ministry of the Interior, has been to England. He was entertained by the Epidemiological Society and made a speech on the subject at its annual banquet. He saw many other persons though there was nothing official in all this. Then Dr. Theodore Thomson of the Local Government Board has been over to Paris quite recently and the result has been more conversation. Though strictly private and unofficial, nevertheless it is to be hoped that a good many objections have been removed. In England a feeling at first prevailed that in the working of an international health office Great Britain would have much to give and but little to receive. If this argument were true many persons, it is to be hoped, would consider it insufficient. *Noblesse oblige*, and if it be the function of England to help constantly and to receive very little assistance in exchange all the better for England, as this would prove that the country had reached an exceptionally fortunate position. But there is another view of the situation, a view that finds some justification in the emphasis laid by the committee on ways and means in regard to watching and reporting the spread of diseases. It seemed as if the health office would be mainly a statistical office which would place Great Britain in a position of singular disadvantage. If every nation drew up its vital statistics with the same ampleness and rigorous exactitude as is the practice in England and Wales there could be no objection to forward all such statistics to an international office or central recording bureau. But where else are such statistics as those given in England to be found? Where else is the notification of infectious disease so strictly enforced? Where are there penalties as severe against false or neglected registration of deaths, births, and marriages? Undoubtedly several continental countries are making great progress in such matters and have displayed much industry and ingenuity in the presentation of vital statistics. Some countries have even ventured to find fault with British statistics, notably in regard to the exclusion of still-births in our records of nativity. Nevertheless, the faithful record in England of cases of infectious disease would paint the country quite black by the side of some continental countries where no such strict record is kept. It is true that the general death-rate would vindicate the position of Great Britain as compared with these countries but no action is taken in consequence of the general death-rate. It is in regard to special and infectious diseases that measures, often of a vexatious nature, are enforced. For instance, cases of small-pox occurring at Liverpool would be promptly and faithfully reported and thereupon such countries as Greece or Portugal might take measures against ships coming from Liverpool. On the other hand, if small-pox occurred at Lisbon or Patras there is not the same certainty of its being promptly recorded, and in any case ships from Greece or Portugal would not be put in quarantine by the British port sanitary authorities. Such contingencies as these seemed to open the door to a policy of pin-pricks by which the nation that gave the best and fullest statistics might be exposed to the greatest annoyance. Some British representatives seemed to think that the other nations should enforce the notification of infectious diseases and when this had been done it would be time enough to exchange internationally such information.

Since the separation of the Conference at the end of last year efforts have been made to dispel the apprehensions just described. In talking the matter over with M. Monod he most emphatically declared to me that there was no idea of utilising the proposed health office as a means of notification and of spreading alarm, or of setting nations to work in taking precautions against each other. It would act as an office of information but would not attempt to transmit the immediate statistics of the day. That was the work of the consuls and an international office could not act with the

necessary promptitude even were it desirable that it should take such a service in hand. The consuls will continue to inform their respective countries when anything which they consider to be dangerous occurs in the towns where they are stationed. But the International Health Office will collect such information as will enable the governments to know better how to act when they receive warnings from their consuls. As it is, the rules laid down in the conventions are the same for all countries and this greatly to the disadvantage of Great Britain. For instance, if a ship arrives from Glasgow, London, or Liverpool, and there have been one or two cases of plague in these ports, the same precautions can be enforced against such a ship as if it were a Turkish vessel coming from a port in the Levant where there is no sanitation whatsoever and where a violent epidemic of plague prevails.

The object of the International Health Office is not merely to collect statistics. It will seek to gather information in regard to all sanitary legislation and measures. Thus the difference between London, Liverpool, and Levantine ports will be rendered evident to all whose business it is to study such matters and consequently it will be possible to differentiate in the treatment of vessels according to whether they come from countries where there is good or bad sanitation. In such comparisons the advantage will be altogether on the side of Great Britain. The same may be said in regard to such sanitary legislation as the Factory Acts, the Ten Hours Bill, and so on. The object is to prevent the hindrance of sanitary legislation by the fear of foreign trade competition.

All these matters having now been gone over thoroughly and all groundless fears, it is hoped, finally removed a new text for the project has been drawn up. This is so worded as to prevent the possibility of the exchange of pin-pricks between the nations concerned. The modifications in the text have been introduced so as to remove all opportunity of unfair advantage being taken in regard to notifications of disease. Therefore clean countries with adequate statistics will run no risk of being punished because they have instituted the compulsory notification of disease. There is, besides, no compulsion about the scheme. The governments will only supply what information they deem it advisable to supply. Nevertheless, it is anticipated that there will be enough information forthcoming to constitute a powerful stimulus to backward countries and to help to bring them into line.

At all events, the project is now ripening. The decision of the conference of 1903 was that the French Government should forward propositions through diplomatic channels to the different States. These proposals had, however, to be supplied by its own technical department. This, I have good reason to believe, has been done within the last few days and the French Minister of Foreign Affairs (M. Delcassé) is now in a position to supply the foreign governments with the text of the proposals as modified so as to prevent misunderstanding together with other indispensable details.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Animal Scavengers of Indian Cities.—The Health of Bengal in 1903.—The Plague Epidemic.

IT has generally been held that crows, kites, vultures, jackals, and pariah dogs are all very useful animals in an Indian town by feeding on the refuse and thus diminishing the amount which would decompose and have to be carted away. An opinion has been growing up of late, however, that in cities they are not only a nuisance but may do more harm than good. In a village refuse is deposited and left to every natural agency for its disposal. In the small towns, also, there is hardly any attempt at conservancy. Even in the large towns it is very indifferently carried out and it is only in the cities that any properly organised removal of rubbish and cleansing of the streets are in force. In a large city animal scavengers cannot be calculated upon and it is found that they scatter rubbish about and distribute it in undesirable places. In Calcutta an order has gone forth to destroy crows' eggs and the question has also come before the Rangoon municipality. The crows and kites are certainly the worst offenders but in some towns vultures also scatter as well as consume. In addition the crows are by their noise and thieving capacities a public nuisance. The danger of these birds lies in their habits of disseminating putrid filth and many a store of drinking water is poisoned by bits of refuse dropped from beak or claws while on the wing. It may be said that where there is deposited refuse there the scavengers will be numerous and it speaks ill, therefore, for a city which is infested with crows. They are not substitutes even for defective conservancy, they are not necessary, and, as many eastern towns prove, they can be done without.

The report of the Sanitary Commissioner of Bengal for 1903 has just been issued. It shows that the birth-rate of this large and populous province is nearly 40 per 1000 and that the death-rate is about 33·3 per 1000. More accurate returns and the comparative figures for the jails show that tuberculosis is much more common among the natives than was formerly supposed. Infantile mortality is very high and a partial inquiry into some 2000 cases indicated that nearly 40 per cent. of the deaths were due to malpraxis, about the same percentage to malnutrition, and nearly 20 per cent. to mismanagement of labour and diseased parentage. There was a great and widespread increase of small-pox but the vaccination department can hardly be considered satisfactory and is to be reformed. Little or nothing has been done in the direction of the destruction of mosquitoes but the jail superintendents are to take up this matter as an object-lesson for the province. It is recorded that 65,680 deaths occurred from plague in Bengal in 1903 and it is questioned whether more medical relief could not be furnished, especially in the infected towns.

The plague mortality throughout India is rapidly subsiding. For the week ending June 4th there were 13,770 deaths as compared with 20,485 for the previous seven days. The provincial figures are: Punjab, 12,269 deaths, as against 18,086; United Provinces, 420, as against 653; Bombay districts, 547, as against 768; Bengal, 129, as against 200; and Kashmir, 81, as against 74. The last returns from Bombay city and from Calcutta are also much more favourable. Instances of the irregularity of outbreaks and recurrences are shown by Benares which in the past cold weather has been practically free, and by Mirzapur, which was also badly infected in 1902, escaping almost entirely last year. Now that the annual recrudescence is subsiding it is suggested by one of the leading European papers that the Government should institute an exhaustive scientific inquiry into the cause of plague and the life of the bacillus outside the human body. At present the sanitarian is practically helpless and he will continue to be so until we learn more about the disease.

June 17th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Health of Liverpool in 1903: Annual Report of the Medical Officer of Health.

THE report of Dr. E. W. Hope, the medical officer of health, on the health of Liverpool during 1903 has just been issued. It is comprised in a volume of 238 pages, illustrated by many maps and diagrams, and contains a mass of vital statistics. The city covers an area of over 23 square miles and has a population of 716,810. During 1903 the death-rate, 19·8 per 1000 of the inhabitants per annum, was the lowest yet recorded. There were 1090 fewer deaths than in 1902. The rate varied greatly in different districts. In Sefton Park it was only 9 per 1000, whilst in the Exchange division it was 30 per 1000. The birth-rate, 33·3 per 1000, showed equal diversity. It was 42·9 per 1000 in the Scotland division and in the Sefton Park district it was only 19·3 per 1000. On the other hand, the infant death-rate in the Scotland division was 215 per 1000 and in Sefton Park 88 per 1000. The greater part of the infant death-rate was preventable. Of 3815 deaths of infants under one year of age, 627 died from atrophy and 763 from zymotic diseases. Ever since 1873 there has been a steady increase in the mortality due to premature birth. 92 infants were "overlain" by their mothers. During 1903 there was a serious outbreak of small-pox. The cases numbered 2032, 141 being fatal. The compulsory notification of chicken-pox resulted in the discovery of 54 cases of small-pox being mistaken for the former disease. Typhus fever, spread from an insanitary area since dealt with, occasioned 272 cases, 57 being

fatal. There were 4053 cases of scarlet fever and 201 deaths; 27,289 cases of measles and 132 deaths; and whooping-cough caused 318 deaths (but this figure is by no means a complete representation of the mischief caused by it). Zymotic diarrhœa caused the deaths of 657 persons (almost all in the poorer and crowded districts), 461 being infants. Phthisis also carried off 1258 persons; 2067 cases were reported during the year. 170 persons died from alcoholism. Dr. Hope advocates hospital treatment for whooping-cough and an amendment of the Vaccination Acts in the direction of stringency. The deaths from small-pox in England are, he stated, nearly 20 times as many as in Germany where vaccination is strictly enforced. Part of the policy of the health committee is the abolition of ash-bins. Owing to demolitions 1123 insanitary courts have disappeared during the last 13 years. The city contains 558 registered lodging-houses, accommodating 14,091 lodgers; these are under close sanitary supervision. 21,719 houses are registered as sublet. During the year the health committee has had new duties thrown upon it, including the registration and supervision of midwives, the inspection of bakehouses, and the enforcement of the Employment of Children Act, which prohibits the employment of any child under 14 years of age. Great attention has been paid to the supply of milk; the daily consumption is 30,000 gallons. Inspection both of city shippons and farms supplying milk has been systematic. The lower death-rate of the city is due almost wholly to the saving of the lives of children owing to measures taken for the prevention as far as possible of infantile disease. The death-rate of infants during 1903 was 159 per 1000; during the three years preceding the average per 1000 was 178. At the same time the death-rate above one year of age has fallen from 16·7 per 1000 to 15 per 1000. 6295 infants have been fed on the milk supplied from the sterilised milk depôts and with the most satisfactory results, for although these children were to begin with below the average in health the death-rate among them was only 78 per 1000. The city hospitals for infectious diseases accommodated 925 patients. They were usually full; indeed, if it had not been for the incessant activity of the medical officer's staff, together with stringent scavenging, the population would be decimated by disease. In combating the outbreak of small-pox the department showed the greatest vigilance. At the meeting of the health committee held on June 30th the chairman remarked upon the declining death-rate, stating that the mortality during the present year (1904) was, so far, still more favourable.

University of Liverpool: First Public Conferring of Degrees.

The ceremony of conferring degrees on new graduates of the University of Liverpool took place at St. George's Hall on July 1st. This being the first public function of the kind which has taken place in the city it was decided to invest it with due impressiveness and in that respect the proceedings did not fall below anticipation. Both the body and the galleries of the hall were crowded with a representative assemblage of between 3000 and 4000 people. While the public were arriving the graduates and others, in academical costume, were marshalled in the west corridor, according to the faculties to which they belonged, Dr. Peace (the city organist) at the great organ playing selections during the interval. At noon the procession entered the hall, headed by the registrar, and proceeded to the allotted seats. It comprised graduates of the faculties of engineering, laws, science, and arts, including both new graduates and graduates of the Victoria University, who, under the provisions of the charter, had accepted an equivalent or taken a higher distinction in the University of Liverpool. Of the latter there were about 300. All wore costumes of the new University, a hood lined throughout with coloured silk, edged, in the case of bachelors, with white fur. The distinctive feature of the costume is that the robe is edged with silk of the same colour as the hood. There is, of course, a different colour for each faculty. Following the first section of the procession, the members of which were accommodated with seats in the body of the hall, there came a second, preceded by ushers and formed of graduates in medicine, Victoria graduates in laws, masters of engineering, masters of arts, and doctors of science. For these places were provided on the platform. They in turn preceded the members of the court of governors, members of the teaching body, and the council of the University, the Lord Mayor, the treasurer of the University, the pro-Chancellors, the Vice-Chancellor, and finally the Chancellor (the Earl of Derby). The Chancellor wore the costume of a doctor of laws. The first proceeding was the presentation of the Earl of Derby for the degree of doctor of laws. His lordship was presented to the Vice-Chancellor by Professor MacCunn who eulogised the many high qualities of the noble earl. The Chancellor in his reply said that they were in a position at last of being able to have a general admission of degrees—the first in the annals of the University. They had amongst them many who would receive honorary degrees and degrees of that University who had acquired their qualifications in University College and obtained their degrees in the University of which Liverpool was then only a part. Many graduates of Victoria University would be presented that day. Referring to the munificence of donors his lordship remarked that the Treasury had made their University a grant of £2000 a year, promising to increase that amount to £3000 at some future time. The Liverpool City Council showed its appreciation of the benefits that would accrue from the foundation of the University by granting £10,000 a year, £1000 of which are reserved for scholarships. The borough of Bootle had granted them £500 a year, half of which was to be expended in scholarships. They had during the last week been promised £10,000 by a friend who wished to remain unknown for the purpose of founding a chair of English language. The family of the late Mr. H. Meade-King had given £1000 to found an entrance scholarship in arts, whilst Mr. W. Thelwall Thomas and Dr. G. Stopford Taylor had established fellowships for a term of years in medical subjects. He believed the University had before it a lengthy and brilliant career in training those who wished to make their own path in life as well as in advancing science, art, and all that tended to the higher life of man. He concluded by assuring his hearers that in his new capacity as Chancellor of the University he would do all in his power to advance the honour and progress of the University. Lord Derby then formally admitted the graduates who were introduced by the deans of the respective faculties. The ceremony was incorrectly described in the local papers as the first function of the kind held in the city, as on March 25th (as described in THE LANCET of April 2nd, p. 960) four students were presented to the Vice-Chancellor (in the absence of the Chancellor) in the Tate Library of the University by the dean of the medical faculty and admitted to the degrees of bachelor of medicine and bachelor of surgery.

Liverpool University Association: Banquet to Dr. Londini.

Dr. Londini, who has recently resigned the office of registrar of the University of Liverpool to take up that of bursar, was entertained to dinner by the University Association at the Adelphi Hotel on June 30th, this being the second dinner of the association. Vice-Chancellor Dale presided. The chairman presented Dr. Londini on behalf of the association with a purse of gold and an address couched in poetic and jocose language. Dr. Londini suitably acknowledged the gift.

July 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Edinburgh Company, Royal Army Medical Corps Volunteers: Presentation to Surgeon-Major D. Hepburn, 3rd Welsh Volunteer Battalion.

THE eighteenth annual dinner of this Company was held on June 29th in the Carlton Hotel, Edinburgh, when a presentation, subscribed for by past and present members, was made to Surgeon-Major Hepburn, the former commanding officer of the company. Between 70 and 80 members and guests were present, and among the latter were Colonel G. A. Hughes, D.S.O., R.A.M.C., principal medical officer of the Scottish district, Major J. Scott, R.A.M.C., Major Hope, Q.R.V.B., Surgeon-Captain C. B. Ker, Q.R.V.B., Mr. Cathcart, and other officers and friends. The chair was taken by Lieutenant Waterston, the commanding officer, who made the presentation to Surgeon-Major Hepburn, and in doing so he referred to the warm feelings of regard entertained towards their late commanding officer by the past and present members. The list of subscribers was literally world-wide, including former members in India, Burmah, Australia, Canada, and the West Indies. In acknowledging the presentation, which took the form of a gold watch,

Surgeon-Major Hepburn expressed the sincere regret which he had felt in severing his connexion with a company with which he had so long and pleasant a connexion. A very enjoyable evening was spent. The other speakers included Colonel Hughes and Mr. Cathcart, who was the first commanding officer of the company.

July 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Ulster Medical Society.

THE annual meeting of this society was held on June 30th in the Belfast Medical Institute. The reports of the secretary, the treasurer, and the librarian were presented and passed. There are now 150 Fellows and 36 members, making with the honorary and life members a total membership of 197. Nine meetings were held during the session with an average attendance of 43. There is a balance of £52 14*s.* 3*d.* and £50 have been invested in the Transvaal Loan. The following office-bearers were elected for next session: President, Professor J. Lorrain Smith; vice-presidents, Dr. J. B. Moore and Dr. W. E. Hadden (Portadown); secretary, Dr. T. Houston; treasurer, Dr. W. B. McQuitty; librarian, Dr. R. R. L. Leatham; members of council in addition to the seven permanent trustees, Dr. J. S. Morrow, Mr. R. Hall, Dr. D. J. McKinney, Dr. D. P. Gaussen, Dr. J. R. Davison, and Dr. W. L. Storey. Sir William Whitla presented to the Medical Institute, on behalf of Mrs. Gordon Stallard, a portrait of her father, the late Professor Gordon, which was unveiled by Mrs. John Campbell, wife of the President of the Ulster Medical Society, and accepted by the President. A vote of thanks to the donor was passed on the motion of Professor T. Sinclair, seconded by Dr. J. Nelson.

The Health of Belfast.

At a meeting of the city council of Belfast held on July 1st an important discussion took place following the report of the public health committee. It appears, in reference to the small-pox epidemic, that 94 cases had been admitted into the Purdysburn small-pox hospital, three had died, and 36 were still remaining on July 1st. Ample accommodation has been made for more and a resident physician has been appointed. The people had been urged to have themselves revaccinated. In the discussion one of the councillors (a medical man) spoke of the epidemic as "only of a trifling nature" but was corrected by the chairman of the public health committee (another medical man) who said that it was "certainly a very severe attack." It is said that several of the cases have very extensive rashes, that three have died, and that the wife of a medical man has taken the disease and has been sent to the small-pox hospital. The usual objections to vaccination were put forward by one of the labour representatives who maintained that "defective foundations of houses, insufficient supply of pure water, and bad ventilation" were the causes of small-pox. It is gratifying to know that the public are responding largely to those who urge revaccination as the proper thing to be done, and it is hoped that the epidemic will soon be stamped out. As an evidence of the efficacy of revaccination it was pointed out that 39 out of 40 "contact" cases were revaccinated. These 39 escaped the small-pox while the one not revaccinated contracted the disease. Of the whole staff of the public health department only one contracted small-pox and that one was a person who had not been revaccinated. Apart from this epidemic the health of Belfast is good, the death-rate being 19·5 per 1000, as compared with 20·2 last year. The public health committee, in addition to advising revaccination, is urging early notification of small-pox and is preparing lists of houses from which cases of infectious disease have been notified for proprietors of laundries to examine so as to protect their workers and their customers. Mr. S. B. Coates reports that the workhouse graveyard is in perfect order and the guardians have applied to the corporation for an allotment of ground in the new Dundonald Cemetery. All refuse from houses where infectious disease occurs is taken to, and consumed at, the refuse destructor and no house is now allowed to be built on filled-in sites unless the medical superintendent officer of health gives written authority.

The Mater Infirmorum Hospital, Belfast.

The collection on behalf of this hospital on Saturday, June 25th, amounted to more than £800.

Sanatorium for Consumptives.

At a joint meeting of the Belfast public health committee and representatives of the board of guardians held on July 4th it was agreed that the corporation should be recommended to take immediate steps to provide for the erection of a sanatorium to accommodate cases of pulmonary tuberculosis which there may be reasonable expectation of curing, while the guardians on their part undertake to proceed with the provision of an auxiliary workhouse building for the care of the destitute poor who may suffer from the disease, it being understood that so far as possible the corporation will take over from them as paying patients cases which come under the category of "primary" or "hopeful" cases of the disease.

Sanitary Condition of Portadown.

Dr. C. J. Clibborn (Local Government Board inspector) reports on the defective sewerage of the district, on the need of a suitable ambulance for the conveyance to hospital of patients suffering from infectious disease, and on the desirability of providing a properly equipped disinfecting apparatus for the use of the locality. He also says that the water-supply is bad and inefficient and recommends the adoption of the Infectious Diseases (Prevention) Act, 1890. The report was considered at a meeting of the Portadown town council on July 4th.

July 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis among School Children.

AT the meeting of the Academy of Medicine held on June 21st Professor Grancher discussed this subject in an address which has produced a sensation and will mark an epoch in the history of tuberculosis. Assisted by some of his pupils he examined all the children in two of the schools of the city of Paris, the result being that in 14 per cent. of the boys and 17 per cent. of the girls he found positive signs of tuberculosis of the glands either of the neck or of the trachea and bronchi; half these children, already showing slight bacillary infection, were the offspring of tuberculous parents. All taken together, out of 896 children 141 were in a condition of latent tuberculosis, a proportion which led to an estimate that among the children attending these schools alone there were 20,000 or 25,000 who would display the clinical symptoms of tuberculosis sooner or later. Professor Grancher made trial of dietetic treatment with some success. A small sum provided by the city enabled him to have a daily supply of meat powder and cod-liver oil issued to the affected children in the two schools which he had examined, and he thought that this course ought to be followed in all schools if it was not possible to adopt the preferable system of having schools for these children in the country where they would soon recover themselves. With regard to tuberculosis neglect in the early stages would be expensive in the end for there would ultimately be an immense outlay on behalf of the patients suffering from pronounced tuberculosis and the results would be no more than moderately successful.

Reduction of Congenital Dislocation of the Hip-joint by the Paci-Lorenz Method.

At a meeting of the Société de l'Internat des Hôpitaux de Paris held on June 23rd, M. Monnier, after remarking that not many years ago congenital dislocation of the hip-joint was regarded as incurable, said that the case was quite different now provided that the children were not more than eight years of age or ten at the outside, and provided that, as shown by radiography, the head of the femur was not too abnormal and the acetabulum not absolutely deprived of cotyloid margin. In the Paci-Lorenz method, now become classical, there were three stages—namely (1) firm pressure from above downwards on the knee, the thigh being strongly flexed on the pelvis; (2) the thigh being still flexed, forcible abduction of it with one hand, whilst with the other hand the trochanter was pressed from behind forward; and (3) outward rotation of the leg till it became perpendicular to the antero-posterior plane. A sudden jerk usually indicated reduction. By means of a plaster splint the thigh was fixed in the position of forcible abduction and at a right angle for three

months. Under chloroform the limb was then set at an angle of 45° and fixed in that position by a plaster splint for three months more, after radiography had shown the permanence of the reduction. In the sixth month another plaster splint (the third) was applied, the legs being now almost parallel. In the eighth or ninth month, up to which time the child had remained constantly in bed, the splints were removed, massage was used, and walking exercise was taken. In support of what he had said M. Monnier referred to the cases of two little girls who had recovered perfectly under this treatment. One of them, who suffered from dislocation of both hips, had double reduction performed at one operation when she was three years of age; the heads of the femora as seen in a radiograph were dislocated to the extent of 18 or 20 millimetres. The second patient who came under treatment at the age of four years had a dislocation on the left side with a shortening of 25 millimetres. It was, however, necessary to classify these cases, for with a boy of six years, the heads of whose femora as seen in a radiograph were of great size and considerably raised, efforts at reduction were continued for 45 minutes without success. The Paci-Lorenz method would only give good results when the cases were selected.

Therapeutic Action of Sugar.

At a recent meeting of the Therapeutical Society M. Toulouse gave an account of his investigations on the dietetic value of sugar in the various morbid conditions in which emaciation required to be treated. For this purpose he gave large quantities of sugar in addition to the food which might consist of either ordinary diet or milk diet. The sugar varied in amount from 50 grammes to 300 grammes (from one and three-quarters to ten ounces) a day, representing in the case of emaciated women as much as eight grammes of sugar per kilogramme of body weight. From the commencement of the treatment the patients gained in weight on an average 100 grammes a day; with some of them the gain was sometimes 500 grammes, being therefore greater than the weight of the sugar that had been taken. Some patients in a few months increased from 35 to 48 kilogrammes. Whilst the sugar was being given examination of the urine generally showed a diminution in the amount of the nitrogenous constituents without their relative proportions being sensibly altered. The action of the sugar was at its maximum when the patient was on milk diet and taking three litres of milk per day. On theoretical grounds gastric fermentation and disorders of digestion might have been expected from the use of so much sugar but no unpleasant effects of that kind were observed. The sugar did not pass into the urine in healthy individuals. These experiments showed that sugar was a therapeutic agent of great activity in all conditions of marked emaciation and that it did not disagree even with patients whose assimilation was imperfect in consequence of disorders of digestion.

Hypochloridation and Hyperchloridation without Bromide in Epilepsy.

At a meeting of the Société Médicale des Hôpitaux held on June 17th M. Toulouse said that since he had shown, in conjunction with M. C. Richet, the influence of chloride of sodium on the action of bromide in the treatment of epilepsy a great number of investigators guided by various considerations had demonstrated the importance of chloride of sodium in connexion with osmotic equilibrium and therefore as a factor in the general nutrition of the organism. In these circumstances it might become a question whether the hypothesis advanced by M. Toulouse and M. Richet in explanation of the new fact which they had brought to light was really the most probable explanation. These two observers supposed that when the tissues were no longer supplied with chloride their affinity for this salt and (in its absence) for allied substances would render them more susceptible to bromide. There might, however, be another explanation. The salt might perhaps in these experiments act by itself apart from the bromide and, for example, by producing alterations in the osmotic tension might affect the vitality of the tissues, especially the nerve tissue, and bring about conditions more favourable to epilepsy. M. Toulouse resolved to take up this question and to inquire whether the giving of salt in excess or the limitation of it appeared to have an effect on the progress of the disease in epileptics, some on milk diet and some on ordinary diet, but not treated with bromide. He now informed the society that he had found that daily quantities of chloride of sodium, varying from two to 25 grammes and given alternately to the same patients at periods when all the other conditions remained constant, had no effect on the frequency of the epileptic attacks. These negative results were important, for they narrowed the available explanations of this new fact so interesting in general pathology.

Monuments to Men of Science.

M. Charles Girault has handed over the Pasteur monument to the managing committee of the Pasteur Institute and it has been decided that the inauguration ceremony shall take place on July 16th. The President of the Republic has been invited by Dr. Roux, director of the Pasteur Institute, and has promised to be present. All the great officers of State will therefore attend and an invitation has been sent to the Institut de France.—On June 26th a memorial to Professor Panas was unveiled with much less ceremonial display at the Hôtel-Dieu. M. Panas was the first professor of ophthalmology in this hospital. The memorial is by the sculptor André Boucher and represents the late professor seated in the consultation room and having at his side a blind child, towards whom he is reaching out his hand preparatory to examining it. A commemorative medal has also been struck, showing on one side the features of M. Panas and on the other side the figure of Science raising a bandage from the eyes with the inscription—

Arte et studio e tenebris in lucem revocat.

Several addresses were delivered, including one by the Dean of the Faculty of Medicine and the proceedings terminated with a speech by M. Chaumié, Minister of Public Instruction.

July 5th.

NEW YORK.

(FROM OUR OWN CORRESPONDENTS.)

The American Medical Association.

THE fifty-fifth annual meeting of the American Medical Association opened in Atlantic City on June 6th. The place of meeting was peculiarly well adapted for the purpose both by situation and by its facilities for accommodating and entertaining a large number of people. The House of Delegates held a session on June 6th, when the retiring president, Dr. Frank Billings of Chicago, occupied the chair.—Dr. George H. Simons of Chicago, the secretary, reported that the membership of the association in June, 1903, was 13,545, that 2413 new members had been added during the past year, and that 919 had been dropped on account of death, non-payment of dues, and other causes. The membership on May 1st, 1904, was 15,039. —Dr. Arthur D. Bevan of Chicago, speaking on the report of the committee on medical education, said that owing to the nature of the United States Government no help could be expected from that source in raising the standard of medical education but they must depend entirely on the efforts of a well-organised association.—Dr. C. A. L. Reed of Cincinnati, Ohio, speaking on medical legislation, said that they had arranged to have a correspondent in every county in the United States. They had succeeded in getting 1940 such correspondents and had issued commissions to each, urging them to use all means in their power, both political and personal, to secure such legislation as the association should desire. They had made an effort to secure the appointment of a physician on the Panama Canal Commission. They had secured the passage of the Bill giving the marine and navy hospitals nurses and dentists. Their request that a representative of the medical corps should be detailed to serve on the general staff of the army had been granted. The entire profession was urged to make an effort to have physicians nominated and elected to Congress, as the lack of such representation was the most serious obstacle encountered in their efforts on behalf of the public welfare and of the profession itself.—At the meeting of the House of Delegates held on June 8th, Dr. Henry D. Holden of Brattleborough, Vermont, said that since the attention of the profession and the public had been drawn to the fact that the effects of venereal disease upon public health were comparable to those of alcoholism or tuberculosis, the national, State, and municipal authorities would be willing to coöperate in securing legislation for the prevention of the

spread of this class of diseases. At present 33 States had no laws whatever on this subject except municipal ones. Michigan had a law forbidding the marriage of persons affected with this class of diseases and fixing a fine of from $500 (£100) to $1000 (£200) for its violation. The influence of the association in assisting the study of venereal diseases and in securing legislation for the prevention of their dissemination was urged.—At the general session of the association, the first meeting of which took place on June 7th, one of the most interesting subjects of discussion was the proposed memorial to the late Major Walter Reed who discovered that a mosquito conveyed yellow fever to man. Dr. W. W. Keen of Philadelphia informed the association that the committee of which he was chairman had been incorporated in the District of Columbia and was thoroughly equipped to take care of any funds for the purpose of raising a memorial to Major Walter Reed. He proposed that the association should contribute $10,000 (£2000) for the purpose.—Dr. William Welsh of Baltimore made an eloquent speech in support of Dr. Keen's motion.—The California State Society subscribed $500 (£100) to the fund and a number of physicians subscribed $1000 (£200) so that at the close of the meeting Dr. Keen was able to announce that $7500 (£1500) had been subscribed.—Dr. John H. Musser of Philadelphia was then introduced as president-elect and delivered an oration on Some Aspects of Medical Education.—The oration on medicine was made by Dr. George Dock, Ann Arbor, Michigan, after which a symposium was held for a discussion on Institutions doing Research Work for the Science of Medicine.

University of New York Medical College.

At a special meeting of the council of the University of New York held recently it was determined to purchase land adjoining the new college building and to proceed at once with the erection of a six-storey building for the clinics and laboratories of the medical college. Plans were submitted and approved and a building committee was appointed. The proposed building will adjoin at the rear the Carnegie laboratory which is a part of the University.

The Proposed Abolition of Coroners in New York.

There was general satisfaction both in lay and medical circles when a Bill for the abolition of coroners in New York city passed through the State legislature,[1] but the rejoicing was decidedly premature, for the Mayor has now vetoed the Bill.

Exclusion of Objectionable Advertisements from the Mails.

The Post Office Department of the General Government has taken a most important step towards the suppression of quack advertising. Those advertisements which are decided to be offensive in their character will be excluded for violation of the law as regards decency and those which advertise "fake preparations" will be excluded on the ground of fraud on the public. The plan of procedure will be to refer all drugs and nostrums to the Department of Agriculture for analysis to determine the sincerity of their claims as medicines and the facts of the analysis will then be referred to the Law Department for final action. It has been held by the law authority that any contract for advertisements of such objectionable matters is void when the Post Office Department has decided adversely on the character of the advertisement. The Postmaster-General states that the question of admission to the mails of newspapers containing advertisements treating of "private" diseases and offering for sale medicines designed for unlawful purposes has already been considered and it has been decided that such advertisements are forbidden circulation in the mails by the Act of Congress which declares to be unmailable any print or other publication of an indecent character and every article or thing designed or intended for the prevention of conception. On presentation to the department of any advertisement such as described the same will be duly considered and appropriate action taken.

Reciprocity among Examining and Licensing Medical Boards.

Most of the States have licensing medical boards befor which every intending practitioner must appear and pass an examination and show his diploma before he can be registered as a qualified physician. But these laws differ in different States and an association has been formed for the purpose of securing reciprocal relations between the board of the States and thus avoiding the necessity of repeating the examination when a physician removes from one State to another. At a recent meeting of the association a basis for reciprocal registration was presented under which the association or confederation is now working. This agreement recommends that there shall be uniform entrance requirements in all of the medical colleges, uniform standard curricula, and uniformity in the State board examinations for licentiates, with such additions as each board may see fit to make. Committees were appointed to confer with other bodies in regard to the plan proposed and to report at the next meeting to be held in October.

June 24th.

[1] THE LANCET, May 7th (p. 1314) and May 14th (p. 1365), 1904.

Obituary.

ALEXANDER OBERLIN MACKELLAR, M.D. R.U.I., F.R.C.S. ENG.,

SURGEON-IN-CHIEF TO THE METROPOLITAN POLICE.

FEW of the older generation of civilian practitioners have had more experience of the surgery of the battle-field than had Alexander Oberlin Mackellar whose death, as already announced in our columns, took place on June 15th at Bella Vista, Royston Park, Pinner, near London. He was born on Dec. 29th, 1845, at New Amsterdam, Berbice, British Guiana, where his father, who was a missionary, died from yellow fever in the previous August. At the age of six months he was brought to England and lived with an uncle until, when about ten years of age, he was sent to Silcoats school. His medical education was received chiefly at the Owens College and the Royal Infirmary, Manchester, and at Queen's College, Belfast. He also attended medical classes at University College, London, and in Paris. In 1869 he graduated as M.D. and M.Ch. at the Royal University of Ireland and in 1873 he was admitted F.R.C.S. Eng. He served in the Franco-Prussian campaign of 1870–71, for his work in connexion with which he was made a knight of the Military Order of Bavaria. Not long after his return to England he was appointed assistant surgeon to St. Thomas's Hospital but during great part of the years 1876 and 1877 he was in Eastern Europe, first as chief surgeon of the English ambulance in the Turko-Servian war, and secondly as consulting surgeon of the fifth ambulance of the Red Crescent in the Russo-Turkish war. For his work in these two campaigns he received decorations, being made a Knight Gold Cross of Takovo for the former and a Knight of the Order of Medjidieh for the latter. In 1885 he delivered the introductory address at the opening of the session at St. Thomas's Hospital; this address, an abstract of which appeared in THE LANCET of Oct. 10th, 1885, not unnaturally referred in very favourable terms to the opportunities presented by the medical service of the army. In 1886 Mr. Francis Mason died and the vacancy thus created was filled by the appointment of Mr. Mackellar as surgeon to the hospital. Within a comparatively short time afterwards he succeeded Mr. Timothy Holmes in the office of surgeon-in-chief to the metropolitan police. This position is no sinecure and henceforth his energies were largely devoted to routine official work. Mr. Mackellar has left a widow for whom his numerous friends have expressed much sympathy in the loss which she has sustained.

One who knew him well in the days when he was on the staff of St. Thomas's Hospital has written to us as follows: "Mr. Mackellar joined the staff of St. Thomas's Hospital as resident assistant surgeon, coming from the Royal Free Hospital, where he had been senior house surgeon, with a reputation enhanced by the report of his services as an ambulance surgeon during the Franco-German war. Few of those who remember him at that time will ever forget the impression that he made, more especially on the students who came under his influence. Of good presence, with a ready and engaging manner, a fluent speaker, a good teacher and operator, his immediate acceptance as an acquisition to the hospital was assured and it was soon forgotten that he was not entirely a St. Thomas's man. He became assistant surgeon to the hospital and was granted leave of absence to serve with the Stafford House Committee's Ambulance during the Turko-Servian campaign and during the following

year went to the Russo-Turkish war. It was during this latter campaign that his coolness in operating in a tent under the fire of the Russian batteries excited admiration. After his return he resumed his work in the out-patient department and there was always a good attendance when it was known that Mr. Mackellar was going to teach and a large audience was assured when it was known that he was going to give before the Medical and Physical Society an account of his experiences with the various ambulances during these wars. As surgeon-in-chief of the metropolitan police he had a large amount of work to do in addition to the routine of hospital duties and private practice. As time passed the number of the police force became much larger and the amount of work required from the chief surgeon increased until it was almost doubled, yet no addition was made to the somewhat inadequate salary of the post. This, no doubt, gave rise to a feeling of disappointment and sense of failure as the years passed and further demands were made on him and the time at his disposal. During his administration he was successful in improving the position of the divisional surgeons and took great trouble in aiding them in every possible way. With the staff at Scotland-yard he was popular, whilst his addresses on 'First Aid' were much appreciated. Ultimately he retired from his position of surgeon to St. Thomas's Hospital and latterly gave all his time to the police service. In earlier days Mr. Mackellar was a very sociable man and made many friends; of recent years from various causes he was not much seen in society, going out very little, so that it was a shock to his friends when his death was announced."

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

THE election of Fellows to fill the vacancies in the Council of the College under the new regulations was held at the College, Lincoln's Inn Fields, on Thursday, July 7th, between 1.30 and 4.30 P.M.

The result of the voting was as follows:—

	Votes.	Plumpers.
MR. BARLING	400	40
MR. BOWLBY	327	8
MR. EVE...	313	53

Mr. Barling, Mr. Bowlby, and Mr. Eve are elected members of the Council.

801 Fellows voted by post, 16 personally, 3 proxies arrived too late, and one postal vote was invalid.

Medical News.

UNIVERSITY OF OXFORD.—At the final M.B. examination in medicine, surgery, midwifery, forensic medicine, and public health the following gentlemen were successful:—

Philip Edward Homer Adams, B.A., Exeter; Walter Brinsmead Billinghurst, B.A., St. John's; Arthur Frederick Hertz, B.A., Magdalen; Arthur Conyers Inman, B.A., Wadham; Alfred Edward Arthur Loosely, B.A., Pembroke; Roderick Dear MacGregor, B.A., Exeter; Perceval Aubertin Mansfield, B.A., and Arnold Shelley, B.A., Keble; James Hugh Thomas, B.A., Trinity; and Allan Read Wilson, B.A., Wadham.

The following candidate passed the examination for the degree of Master of Surgery (M.Ch.) in Trinity term:—

Paul Norman Blake Odgers, B.M., Lincoln.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bordeaux:* Dr. Gantrelet has been appointed *professeur agrégé* of Physiology.—*Budapest:* Dr. Ladislaus Kétly has been recognised as *privat-docent* of Medical Diagnosis.—*Freiburg:* Professor Krönig of Jena has now been offered the vacant chair of Gynæcology.—*Giessen:* Dr. Kroemer has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Leipsic:* The names of Professor Rabl of Prague and Professor Bonnet of Greifswald are mentioned in connexion with the vacant chair of Anatomy.—*Lille:* Dr. C. Dubois has been appointed *professeur agrégé* of Physiology.

FRIEDENHEIM HOSPITAL.—The annual meeting of the supporters of Friedenheim Hospital (Home of Peace for the Dying, 8, Upper Avenue-road, Swiss Cottage, London, N.) was held on June 25th in the adjoining School for the Blind. Reference was made to an erroneous report which has been recently published to the effect that the hospital not long ago received a large legacy. This is unfortunately not so. The many friends of the institution who have written in congratulation are assured that their support is still as greatly needed as ever.

HOLIDAY GUIDES.—From the Health Resorts and Development Association we have received copies of guides to Aberystwyth, Harwich and Dovercourt, Llandrindod Wells, Malvern, and Tenby, all of which are described as official publications. They are well illustrated and give such facts about the respective places with which they deal as the intending visitor may require to know. These guides can be obtained post free from the town clerk of the places mentioned.—"A Holiday in a Mail Steamer" is the title of a small illustrated guide book published by the Royal Mail Steam Packet Company, describing voyages from Southampton to Madeira or Teneriffe and back. The voyage to and from Madeira occupies about 20 days and that to and from Teneriffe about 24 days.

THE ACCIDENT TO MR. F. A. BARTON.—Mr. F. A. Barton, M.R.C.S. Eng., L.R.C.P. Lond., who has during the last 12 months been engaged at the Alexandra Park in constructing an airship which he hopes will fulfil the requirements of the War Office, met with a serious accident on Monday morning last. The airship had been completed and for some days past the inventor and his assistants had been engaged in preparations for filling the balloon with hydrogen and during this proceeding one of the generators exploded, wounding Mr. Barton about the face. The first trial was to have taken place in the course of the present week but in consequence of the accident it has been postponed until Mr. Barton is well enough to give his personal supervision. This will probably mean a delay of more than a week but we are glad to learn that the injuries are not serious.

QUEEN ALEXANDRA SANATORIUM, DAVOS.—The first annual meeting of the supporters of the scheme to provide this sanatorium at Davos, Switzerland, was held on June 29th at 11, Chandos-street, London, W. Lord Balfour of Burleigh presided. The object of the movement is mainly to secure the advantage of sanatorium treatment in an Alpine climate for English-speaking people suffering from curable forms of pulmonary disease and unable to bear the entire expense of treatment. A site of about five acres has already been secured. This site is situated about 300 feet above the level of Davos and 5400 feet above sea level; it is sheltered from the north and the east and obtains an exceptional amount of sunshine. The building will be erected thereon as economically as possible and it is hoped that the cost will not exceed £300 per bed. It is intended to provide a separate room for each patient. The total sum collected from all sources since the starting of the appeals amounts to about £6400 and the site has cost about £6000. An urgent appeal for funds for the building will shortly be made. This building, said Dr. C. Theodore Williams, the treasurer, must be worthy of the name it would bear.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—In view of the departure of Mr. James Wallace, M.D., C.M. Aberd., from Stonehaven a committee of gentlemen representing a number of his patients and friends presented him and Mrs. Wallace on June 23rd with a silver tea tray as a parting token of regard. Dr. Wallace, in accepting the gift, spoke with much feeling of his work in Stonehaven. Mrs. Wallace and himself, he said, were very grateful to all the friends who had in such a kindly and substantial way expressed their goodwill.—On June 21st the Falmouth Lodge of Oddfellows presented Mr. W. King Bullmore, M.D. St. And., M.R.C.S. Eng., L.S.A., with an illuminated address expressing appreciation of his valuable services as lodge surgeon for 47 years.—Mr. Walter C. C. Pakes, M.R.C.S. Eng., L.R.C.P. Lond., who has resigned the post of medical officer of health to the Rand Plague Committee, has been presented with a silver spirit service and a gold chronometer, the latter bearing the following inscription: "Presented to Dr. Walter C. C. Pakes on his resignation as Medical Officer of Health, Rand Plague Committee, by the members of the staff as a mark of their

appreciation and esteem. May 31st, 1904." In connexion with the presentation a smoking concert was held.

THE OXYGEN HOSPITAL. — Princess Louise (Duchess of Argyll) was present at the eighth annual meeting of the subscribers to the Oxygen Hospital, held in the board-room of the institution in Fitzroy-square, London, W., on Monday last. Mr. Burdett-Coutts, the chairman of the hospital committee, presided at the meeting and said that there was great need for further financial assistance as there was a debt of £700 pressing on the institution.

THE DRAINAGE OF ELTHAM AND MOTTINGHAM.—A public meeting of householders in Eltham and Mottingham was held on Wednesday night, July 6th, at the parish room, Mottingham Church, in connexion with an inquiry into the occurrence of typhoid fever which has been proceeding in that district for some months past, in the conduct of which certain of the residents have taken an active part. The institution by a community of an inquiry into their own sanitary condition is a rare occurrence and it may be our duty to comment more fully upon the circumstances.

THE HOSPITAL OF ST. JOHN AND ST. ELIZABETH.—The recent bazaar held at Prince's Skating Club, Knightsbridge, London, S.W., in aid of this charity was attended with much success and at a meeting of the subcommittee held recently it was decided to hand over to the treasurer of the hospital the sum of £2000, whilst it is anticipated that there will be an additional £500 to hand over when all expenses are paid. Owing to the generous help which the committee received, and especially through the kindness of Her Grace the Duchess of Bedford, the expenses were exceedingly small, amounting only to about £200.

PRIZE DAY AT GUY'S HOSPITAL.—The distribution of prizes to the successful students of the Guy's Hospital Medical School took place on July 6th at the hospital. The prizes were given away by Lord Goschen and among the medallists and prizemen were S. J. Darke, who gained the £100 open scholarships in Arts. H. A. Sanford was awarded the £150 open scholarship in science and C. W. Greene took the £50 scholarship for university students. Lord Goschen in his address to the students made some observations on the buildings that were now necessary for the accommodation of the sick. He expressed admiration at the splendid progress made in scientific research and pointed out how further research and study was required to open up the mysterious Hinterland which lay behind what was at present known in medical science. All students, however, could not be scientific investigators, the country must have general practitioners as well. He warned his hearers that the medical student from his earliest education and his work in the hospital dealt with facts and the material aspects of nature, so that he had reason to guard himself against materialistic influences. There was another danger and that was from the moral point of view. The close and constant contact with the darker side of human nature—with sin, crime, and disease—might lead a medical man to become pessimistic but he urged them to hold to their faith in human nature and to hold high the standard of honesty. The garden party which was afterwards held in the hospital gardens was attended by over 3000 people and the fine weather and the band of the 1st Life Guards helped in making the gathering a brilliant success.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Registration of Nurses.

MR. TENNANT has been selected as chairman of the select committee of the House of Commons on the question of the registration of nurses.

The Medical Profession and the Licensing Bill.

In the discussion on the proposal to closure the committee stage on the Licensing Bill in compartments Dr. C. F. HUTCHINSON and several other Members protested that so far the medical profession had not had an opportunity of stating its views on the subject. Dr. Hutchinson told the House that 15 months ago he received a licence from his constituents to speak in Parliament. The Prime Minister was now about to take that licence away. A waggish Member punctuated this sentence with the query: "Is it for misconduct?" "Oh, no," promptly retorted Dr. Hutchinson, amid laughter, "it is not for misconduct, and it is because of that fact that I want to know what compensation the Prime Minister is going to give me." But, as we have indicated, his point was that the medical men in the House had not been able to express their opinion on the Bill. Some Members laughed. "Honourable Members may laugh," he went on, "at this reference to the doctors, but a time comes to every man when he can do without Prime Ministers and Colonial Secretaries and cannot do without a doctor. It is the old story:—

> 'God and the doctor all men adore
> When sickness comes, but not before;
> When health returns and things are righted
> God is forgotten and the doctor slighted.'"

In spite of this protest the closure was carried.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 29TH.

Small-pox in Belfast.

MR. JOSEPH DEVLIN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that recently there had been a serious outbreak of small-pox in the city of Belfast; whether he could furnish any particulars as to the cause and extent of the outbreak; whether his attention had been called to the neglect of the Belfast city council to insure an efficient exercise of its powers under the Public Health Acts and the custom sanctioned by the council of permitting all kinds of refuse to be dumped on ground intended for building purposes; whether he was aware that a number of cottages abutting on the workhouse cemetery in Donegal-road, Belfast, where upwards of 10,000 had been interred, were overcrowded and without any system of drainage; and whether, in the circumstances, he would bring pressure to bear upon the city council in order to secure an immediate remedy for this state of affairs.—MR. WYNDHAM, who replied, said: The total number of cases admitted to the small-pox hospital is 93: two have died, 55 have been discharged, and 36 remain under treatment. The disease is supposed to have been introduced from Scotland. The Belfast corporation, in the opinion of the Local Government Board, efficiently discharges the duties devolving upon it as the sanitary authority. Every effort is being made to prevent the further spread of the disease. No complaints have been made to the Board in respect to the alleged dumping of refuse or the overcrowding of cottages.

Beri-Beri in South Africa.

MR. HERBERT SAMUEL asked the Secretary of State for the Colonies whether he was yet able to state the cause and extent of the outbreak of beri-beri among the Chinese coolies engaged for the Transvaal and the methods adopted to prevent its spread.—MR. LYTTELTON replied: Lord Milner telegraphs:—"*Tweeddale* arrived with 40 cases of beri-beri. Three deaths took place at sea from this cause and five at Durban. Remaining cases were sent back to China at once in *Tweeddale*. Since arrival of labourers on Rand 25 cases have occurred and one death from heart failure. All remaining cases isolated in lazaretto and likely to recover. Neither medical officers nor labourers themselves have smallest anxiety about this outbreak and former express opinion that general health of this batch is surprisingly good. Full report on arrival, landing, and despatch of coolies will go to you by next mail and I will keep you fully informed as to their health."

THURSDAY, JUNE 30TH.

Beri-beri in South Africa.

Answering Dr. C. F. HUTCHINSON, MR. LYTTELTON said: I gave the House yesterday all the information which I have so far received on the subject of the outbreak of beri-beri in South Africa. The contents of the telegram from Lord Milner which I then read appear to me to show that Lord Milner and his medical advisers do not regard the occurrence of this not uncommon disease as involving any special difficulty. This accounts for his not having treated the matter as one demanding urgent communication home.

MONDAY, JULY 4TH.

Sanitation in Belfast.

MR. JOSEPH DEVLIN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that in the Dee-street of Belfast there were over 200 houses without any sanitary conveniences; and whether, in view of the outbreak of small-pox in that city, steps would be taken to induce the corporation to perform more efficiently its duty under the Public Health Acts.—MR. WYNDHAM replied: I am informed by the town clerk that there are only 106 houses in Dee-street and that all have proper sanitary accommodation. The corporation has taken, and is taking, all necessary steps to carry out its duties under the Public Health Acts and on Friday last adopted plans at a cost of £40,000 for the more efficient sewering of two outlying districts recently added to the city.

Dispensary Districts in Ireland.

MR. JORDAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been drawn to a report by Dr. M'Carthy, on May 30th, to the Local Government Board in reference to six dispensary districts composing the union of Enniskillen—namely, that the medical officer's attendance and report books and the medical relief register of cases and the midwife's register were not sent to the guardians for examination and that no arrangement had been made for the examination of the dispensary records; whether he was aware that the guardians, in view of the importance of such examinations in the interests of the poor and for the due discharge of the Medical Charities Acts by all officials concerned, on August 12th, 1902, requested the Local Government Board to sanction the appointment of local committees consisting of the guardians representing the dispensary district, the clergymen of all churches, and five ratepayers in each district, the committee to meet monthly, examine the doctor's books, and report to the board of guardians; and if so, whether he would, in view of the fact that the doctor's books had not been examined since the passing of the Local Government Act of 1898 and of the difficulty of inducing guardians to remain after the business of the board had terminated, take into consideration the necessity of devising some plan by which an effective examination of the doctor's books might be performed with the least tax on the guardians' time.—MR. WYNDHAM said: Section 30 of the Act of 1898 abolished dispensary committees and transferred their business to the board of guardians.

Consequently the Local Government Board was unable to sanction the arrangement proposed in August, 1902. It is open to the guardians under Article 10 of the Dispensary Rules to appoint a small committee of its members for the purposes mentioned in the question. In the majority of the unions the guardians themselves examine the books. Elsewhere the duty has been delegated to a committee of guardians with satisfactory results.

Beri-beri in the Port of London.

Colonel LEGGE asked the Secretary of State for the Home Department whether his attention had been called to a statement made by Sir Patrick Manson in an address delivered at St. George's Hospital on Oct. 1st, 1897, that beri-beri was very common in the Port of London, especially among the Lascars and Seedy boys who in many instances formed the bulk of the crews of the large steamers trading to the East; whether he could state how many cases were treated annually at the Seamen's Hospital; and what precautions were taken to prevent the spread of the disease.—Mr. LONG answered: My attention has been drawn to the statement referred to in the question. I am informed that the number of cases of beri-beri treated annually in the Seamen's Hospital in the ten years ended in 1900 averaged 24. The disease is not regarded by the medical officer of the Port of London as infectious in the ordinary sense and no special precautions are considered necessary.

Beri-beri in South Africa.

Major SEELY asked the President of the Board of Trade whether he was aware that by the provisions of the Natal Act, Immigration (restricted), 1903, the master and owners of any vessel from which any person suffering from a loathsome or a dangerous contagious disease might be landed were liable to a penalty of from £100 to £5000; whether the master or owners of the British ship *Tweeddale*, from which immigrants suffering from beri-beri were landed at Durban, had been subjected to the penalties referred to; and whether he would take steps to warn the masters and owners of British ships of the penalties to which they were liable for any infringement of the provisions of the above Act while engaging in this traffic.—Mr. LYTTELTON, who replied, said: I have telegraphed for information to the officer administering the Government of Natal and have received the following answer: "My Ministers suggest that you give following reply to question. It is the custom in Natal to subject persons to penalties after they have broken the law, not before. The *Tweeddale* did not infringe the Immigration Restriction Act. No British ships are liable to penalties for engaging in this traffic—namely, the conveyance of Chinese immigrants under a scheme approved by the Government of Natal. Both shipmasters and Transvaal Government have been duly informed of our law and of the requirements thereunder." It will be observed that the Natal authorities do not consider beri-beri to be a loathsome or dangerous contagious disease.

TUESDAY, JULY 5TH.

Distillation of English Spirit.

Mr. WILLIAM M'KILLOP asked the Chancellor of the Exchequer whether he would state the total quantity of spirit distilled in England during the year 1903, and how much was used for methylation, rectifying, and compounding purposes; whether any English spirit was used as whisky in Customs warehouses in Leith, and, if so, what was the total quantity despatched thereto from distilleries in England; whether he had any official information showing the materials from which English spirit was usually distilled; and whether any beet molasses from abroad was used in its manufacture.—The CHANCELLOR of the EXCHEQUER answering said: The total quantity of spirits distilled in England during the year ended March 31st, 1904, was 11,604,851 proof gallons. The quantity of home-made spirits used for methylation during the same period was 4,398,002 proof gallons. I have no means of knowing the quantities used for rectifying and compounding. 33,300 proof gallons of British spirits were despatched to Customs warehouses at Leith from English distilleries during the 12 months ended June 30th, 1904. The materials commonly used in the distillation of English spirit are malt, unmalted grain, molasses, sugar, glucose, and rice. No doubt beet is used to some extent but I have no means of knowing the quantities.

Ankylostomiasis.

Mr. JOHN WILSON (Durham) asked the Secretary of State for the Home Department whether he had taken or would take steps to insure that in the event of a case of miner's disease (known as ankylostomiasis) arising in any coal or metalliferous mine a notification thereof should be forthwith sent to the medical officer of health and the mines inspector of the district in which such mine was situate and that the isolation of cases that might arise should be secured; and whether, if the administrative powers of the Home Office were not adequate for the purpose, he would introduce the necessary legislation.—Mr. AKERS-DOUGLAS replied: I have not yet learnt the results of the conferences between owners and men which were to be arranged in each district to discuss this subject generally and until I do so any statement as to the precise steps to be taken for the prevention of the disease would be premature, but I doubt whether from the nature of the case it is practicable to require notification and isolation of every case of the disease. I am glad to say that no case has yet been found in a coal mine.

The Production of Calf Lymph.

Mr. FIELD asked the President of the Local Government Board whether the Government hired live calves for the purposes of vaccinating for lymph, at what cost and how long those calves were kept, what became of them after being returned to the owner, whether this class of meat was sold as veal for public consumption, whether he had any reports on its fitness for human food by local medical officers of health, and whether it was identified when being sold as lymph veal.—Mr. LONG replied as follows: Calves are hired at a cost of from 20*s.* to 25*s.* a week for the purpose mentioned. The number of calves used varies. At present the average number is approximately 15 weekly. The calves are kept for about two weeks. After the lymph has been collected from them they are slaughtered and their carcasses are thoroughly examined by a veterinary expert. Sound carcasses are delivered to the contractor by whom the animals are supplied to be disposed of as he think fits. The concern of the department in the matter then ceases. I am not aware that any medical officer of health has made a report on the subject but I am advised that when the carcasses are found to be sound there is no reason why they should not be sold for food. I have no information as to the practice with regard to the sale of carcasses as meat. The number of the carcasses delivered to the contractor in 1903-04 was about 1000. This is above the average.

BOOKS, ETC., RECEIVED.

ALLAN, T. AND G., Newcastle-upon-Tyne.

Notes on Percentage Calculations, with Examples. By Frank R. Dudderidge, F.C.S., Pharmaceutical Chemist, Principal of the North of England School of Chemistry and Pharmacy (56, Northumberland-street, Newcastle-on-Tyne). Price 6*d.*

CHURCHILL, J. & A., 7, Great Marlborough-street, W.

A Manual and Atlas of Medical Ophthalmoscopy. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S. Fourth edition. Edited by the Author and Marcus Gunn, M.B., F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital. Price 14*s.* net.

COLLINGRIDGE, W. H. & L., Aldersgate-street, E.C.

Easily-grown Hardy Perennials: Being a Description, with Notes on Habit and Uses, and Directions for Culture and Propagation, of Selected Perennial and Some Biennial Outdoor Plants, Bulbs, and Tubers, comprising all of the best known Genera and Species. Illustrated by 256 Reproductions of Photographs. By George H. Vos, B.A., &c. (Cambridge). Editorially supervised by T. W. Sanders, F.L.S., F.R.H.S., editor of *Amateur Gardening*, &c. Price 5*s.*

FISCHER, GUSTAV, Jena.

Die multiple Sklerose des Gehirns und Rückenmarks. Ihre Pathologie und Behandlung, klinisch bearbeitet von Dr. Eduard Müller, Privatdozent an der Universität und Assistenzarzt an der medizinischen Klinik zu Breslau. Mit einem Vorwort von Professor Dr. Adolf von Strümpell in Breslau. Price M. 10.

Die Frühdiagnose des Abdominaltyphus. Eine klinische und literarische Studie. Von Dr. A. Kühn, Privatdozent an der Universität Rostock. Price M. 3.60.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Die Fruchtabtreibung durch Gifte und andere Mittel. Ein Handbuch für Aerzte und Juristen. Von Prof. Dr. L. Lewin. Zweite umgearbeitete und vermehrte Auflage. Price M. 10.

Das Gansersche Symptom, seine klinische und forense Bedeutung. Von Dr. med. Julius Hey, Nervenarzt in Strassburg i. Els. Price M. 3.

JOHN BALE, SONS, AND DANIELSSON, LIMITED, 83-91, Great Titchfield-street, Oxford-street, W.

On the Extraction Operation, with Special Reference to the Use of the Elevator. By G. Mulready Keevil, M.R.C.S., L.R.C.P. Lond., L.D.S. Eng. Price not stated.

Clinical Records of "Light" and "X-ray" Therapy (Illustrated). By G. G. Stopford Taylor, M.D. Durh., M.R.C.S., L.R.C.P., Hon. Attending Physician to the Liverpool Skin Hospital. Price 5*s.* net.

JOHNSON, R. BRIMLEY, 4, Adam-street, Adelphi, W.C.

Devices and Desires. Poems by P. H. Lulham, M.R.C.S., L.R.C.P. Price 3*s.* 6*d.* net.

Twenty Years of Psychical Research: 1882-1901. With facsimile Illustrations of Thought-transference Drawings. By Edward T. Bennett, Assistant Secretary to the Society for Psychical Research. 1882-1902. Price 1*s.*

KING, P. S., AND SON, Orchard House, Westminster, S.W.

Public Interests or Trade Aggrandisement? An Examination of some Important Issues raised by the Licensing Bill, 1904. By Joseph Rowntree and Arthur Sherwell, Joint Authors of "The Temperance Problem and Social Reform." Price 1*s.* net.

KÜNDIG, H., Corraterie, 11, Geneva.

Le Ventre. Etude Anatomique et Clinique de la Cavité Abdominale au point de Vue du Massage. I. Le Rein. Par le Dr. M. Bourcart, Privat-docent à l'Université de Genève, Membre correspondant de la Société de Kinésithérapie. Price Fr.10.

Les Fractures de l'Humérus et du Fémur. Par le Dr. Théodore Kocher, Professeur de Clinique Chirurgicale à l'Université de Berne. Traduit de l'Allemand par le Dr. L. Senn, Chef de Clinique Chirurgicale à l'Université de Lausanne. Price Fr. 15.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, Calcutta.

Annual Report of the Sanitary Commissioner with the Government of India, 1902, with Appendices and Returns of Sickness and Mortality among European Troops, Native Troops, and Prisoners in India, for the Year. Price Three Rupees, or 4*s.* 6*d.*

PENTLAND, YOUNG J., Edinburgh and London.

Manual of Practical Ophthalmology. By George A. Berry, M.B., F.R.C.S. Edin., Senior Ophthalmic Surgeon, Royal Infirmary; Surgeon, Edinburgh Eye Dispensary. Price not stated.

The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Edin., and Alexis Thomson, M.D., F.R.C.S. Edin. New Series. Vol. XV. Price not stated.

P. BLAKISTON'S SON AND CO., 1012, Walnut-street, Philadelphia. (REBMAN, Limited, 129, Shaftesbury-avenue, W.C.)

A Manual of Fever Nursing. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine in the New York Post-graduate Medical School and Hospital. Price $1.00 net.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Précis de Thérapeutique Oculaire. Par le Docteur Scrini, Chef de Clinique Ophthalmologique de la Faculté de Paris à l'Hôtel-Dieu. Préface du Professeur De Lapersonne. Price Fr. 5.

Le Liquide Céphalo-Rachidien. Par le Docteur Milian, Ancien Interne des Hôpitaux de Paris, Ancien Chef de Clinique à la Faculté de Paris. Price Fr. 6.

Principes Fondamentaux d'Obstétrique, verifiés, rectifiés ou établis à l'Aide de l'Expérimentation sur le Mannequin Naturel et de l'Observation sur la Parturiente. Introduction à l'Étude Clinique et à la Pratique des Accouchements. Par le Professeur L. H. Farabeuf et le Docteur Henri Varnier. Préface du Professor A. Pinard. Nouvelle Edition, Revue et Corrigée. Price Fr. 15.

WILEY, JOHN, AND SONS, New York. (CHAPMAN AND HALL, Limited, London.)

A Laboratory Manual of Organic Chemistry for Beginners. By Dr. A. F. Holleman, Professor Ordinarius in the University of Groningen, Netherlands, and Fellow of the Royal Academy of Sciences, Amsterdam. An Appendix to the Author's Text-book of Organic Chemistry. Translated from the Dutch by A. Jamieson Walker, Ph.D. (Heidelberg), B.A., Head of the Department of Chemistry, Technical College, Derby, England. With the co-operation of the Author. First edition. Price, cloth, $1.00 net.

WILLIAMS AND NORGATE, 14, Henrietta-street, Covent Garden, W.C. (Published for the University Press of Liverpool.)

The Human Sternum. Three Lectures delivered at the Royal College of Surgeons, England, November, 1903. By Andrew Melville Paterson, M.D., Derby Professor of Anatomy in the University of Liverpool. Price 10s. net.

A Treatise on Epizootic Lymphangitis. By Captain W. A. Pallin, F.R.C.V.S., Army Veterinary Department. Price 2s. 6d.

WRIGHT, JOHN, AND CO., Bristol (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London).

Acid Autointoxications: being Part IV. of Several Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfort-a.-M. and Dr. Mohr. Authorised translation under the direction of Boardman Reed, M.D., Philadelphia. Price 3s. net.

Saline Therapy: being Part V. of Several Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfort-a.-M., and Dr. Carl Dapper, Bad Kissingen. Authorised translation under the direction of Boardman Reed, M.D., Philadelphia. Price 3s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BLANCHARD, D. F., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Officer of Health at Cue, West Australia.

BLAIR, CHARLES, M.D. Durh., F.R.C.S. Eng., has been appointed Surgeon to the Western Ophthalmic Hospital, London.

CLAYTON-GREENE, W. H., M.B., B.C. Cantab., F.R.C.S. Eng., has been appointed Supernumerary Surgeon in Charge of Out-patients to St. Mary's Hospital, Paddington.

COURTENAY, F. W. E., L.R.C.P., L.R.C.S., has been appointed Medical Referee to the Empire Guarantee and Insurance Corporation, Limited.

EDMUNDS, EDGAR FLETCHER, M.B., B.S. Durh., has been appointed Assistant House Surgeon to the Rotherham Hospital and Dispensary.

EMMERSON, A. T., M.D. Toronto, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

JOHNSTON, H. MULREA, M.B., B.Ch., has been appointed Chief Demonstrator of Anatomy in Trinity College, Dublin.

KELLY, W. R., M.B., B.S. Melb., has been appointed Medical Officer at Croydon, Queensland, Australia.

MACKENZIE, MARION E., M.B., Ch.B. Edin., has been appointed House Surgeon to the East End Branch of the Children's Hospital, Sheffield.

PALMER, FREDERICK S., M.D., M.R.C.P., has been appointed Assistant Physician to the West-end Hospital for Diseases of the Nervous System.

PETER, ALASTAIR GORDON, M.B., Ch.B. Aberd., has been appointed Senior House Surgeon to the Great Northern Central Hospital.

SASS, WILFRID, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Anæsthetist to the Cancer Hospital, Brompton, S.W.

STEPHEN, W., B.A., M.B. Toronto, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

WHITE, G. V., M.B., Ch.B. Melb., has been appointed Acting Health Officer and Acting Medical Officer at Thursday Island, Queensland, Australia, *pro tem.*

YULE, BRANSBY, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior House Physician to the Great Northern Central Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE, War Office.—Examination for not less than 30 Commissions in the Royal Army Medical Corps.

AYR DISTRICT ASYLUM.—Assistant Medical Officer, unmarried. Salary £120, with board, apartments, attendance, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BIRMINGHAM GENERAL HOSPITAL.—Assistant Physician. Honorarium of £100 per annum.

BIRMINGHAM INFIRMARY.—Assistant Resident Medical Officer. Salary £104 per annum, and apartments, rations, coals, gas, laundry, and attendance.

BIRMINGHAM, UNIVERSITY OF.—Walter Myers Travelling Studentship. Value £150.

BRECON AND RADNOR ASYLUM, Talgarth, R.S.O.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, attendance, and laundry.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

CANTERBURY BOROUGH ASYLUM.—Assistant Medical Officer. Salary £140 per annum, with quarters, board, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Two House Physicians for six months. Salary at rate of £30 per annum, with board and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with rooms, board, washing, plus attendance.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100, with board and residence.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing.

GRAVESEND HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

HASTINGS, ST. LEONARDS AND EAST SUSSEX HOSPITAL.—Assistant Physician.

HEREFORD COUNTY AND CITY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Surgeon Dentist.

LEEDS, CITY OF.—INFECTIOUS DISEASES HOSPITALS.—Second Assistant Resident Medical Officer. Salary £120 a year, with board, lodging, and washing.

NEW ZEALAND, SEACLIFF LUNATIC ASYLUM, Dunedin.—Assistant Medical Officer, unmarried. Salary £250, with board, lodging, and washing.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Honorarium £25, with board, lodging and washing.

NOTTINGHAMSHIRE CONSUMPTION SANATORIUM, Mansfield.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Senior Resident Medical Officer, unmarried. Commencing salary £300 per annum, with board and lodging. Also Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum, with board and lodging.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—Honorary Pathologist.

SOUTHWARK UNION INFIRMARY, East Dulwich.—Second Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

VICTORIA UNIVERSITY OF MANCHESTER.—Junior Demonstrator of Physiology.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST SUSSEX, COMBINED SANITARY DISTRICT.—Medical Officer of Health. Salary £650 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory Act at Uffculme, in the county of Devon; at Marple, in the county of Cheshire; and at Grays, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

AUSTIN ROBINSON.—On June 2nd, 1904, at the Sanatorium, Nottingham-road, Natal, the wife of Dr. F. Austin Robinson, D.M.O. Nottingham-road (née Lilian Rogers Jenkins), of a son.

DICKSON.—On July 5th, 1904, at the Lodge, Wye House, Buxton, the wife of Graeme Dickson, L.R.C.P., &c., of a daughter.

SEALE.—On May 28th, at "Oakfield," Ceres, Cape Colony, the wife of Edward A. Seale, M.D., of a daughter.

MARRIAGES.

BOYD—LEPPER.—On June 30th, at St. Nicholas' Church, Carrickfergus, Francis Darby Boyd, C.M.G., M.D., Edinburgh, to Clara Constance, eldest daughter of Alfred J. A. Lepper, The Rhanbhuoay, Carrickfergus.

WHITWELL—BRANCKER.—On July 2nd, at St. Margaret's Church, Prince's-road, Liverpool, by the Rev. J. Bell-Cox, George Graves, the son of the late Francis Whitwell of Shrewsbury, to Gladys Mary, the only daughter of the late Benjamin Brancker of Fern Grove, Liverpool, and Mrs. Brancker, Summer Hill, Oswestry.

DEATHS.

ELLIOT.—On July 4th, at Bexhill, Norman Bruce Elliot, M.D., F.R.C.S., M.R.C.P., Barrister-at-law.

SCATLIFF.—On June 3rd, at Springlands, Shermanbury, Sussex, John Milton Elborough Scatliff, M.D., M.R.C.S., also of 11, Charlotte-street, Brighton, aged 53 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

LOOK ON THIS PICTURE AND ON THIS.

A CORRESPONDENT has sent us the two following exhibits marked A and B:—

[A]

MIDWIFERY. VACCINATION. TEETH EXTRACTED.

HOURS—Mornings, 9.30 to 12 | Sunday Mornings, 9.30 to 10.30
Evenings, 6.30 to 9 | Evenings, 7 to 8.30

Advice and Medicine at Surgery.

ADULTS, 1/- CHILDREN, 6d.

VISIT & MEDICINE, 1/6

Terms Or 5/- for the week. Cash.

[B]

Any enquiry respecting the case must be accompanied by this card.

DR. W. C. ——.

The Victoria Hospital for Children,
QUEEN'S ROAD, CHELSEA.

OUT-PATIENT TICKET, No. ONE SHILLING. } C.....
R.....

You are to attend your PHYSICIAN on MONDAY at 1.30 p.m., and THURSDAYS at 9.30 a.m.

Each Patient to bring a clean Bottle.

Take Notice, that if you neglect attending for Six Weeks the paper will be removed from your book. This card must be taken great care of and brought to the Hospital every visit.

THREEPENCE will be charged for each visit in the month.
(Available for one month only.)

Of A he says that the medical man who issued it received a reproof from the corporation to which he belonged. And of B he says that it can be obtained from the hospital at the price mentioned. He asks us to indicate the difference between the documents. We cannot, but some of our readers might like to draw distinctions between the offer of cheap medical attendance when made by a practitioner and when made by a hospital.

F.R.C.S. EDIN. FOR PRACTITIONER OF TEN YEARS' STANDING.

A CORRESPONDENT writes: "I should be much obliged if any of your readers could give information about this examination—books to be read and which is the best optional subject."

HOLMAN TESTIMONIAL FUND.

THE following additional subscriptions to the above fund have been received:—

	£	s.	d.
Dr. E. C. Arnold	1	1	0
Mr. G. H. Barton	0	2	6
Dr. C. Dorrington Bath, J.P.	1	1	0
Mr. C. F. Wakefield ...	0	10	6
Mr. J. D. Malcolm	1	1	0
Dr. Bransby Roberts ...	1	0	0
Mr. E. Noble Smith ...	1	1	0
Mr. Alfred Winkfield ...	1	1	0
Mr. T. H. Martin	1	1	0
Mr. E. G. A. Walker ...	1	1	0
Dr. J. Hewetson	1	1	0
Dr. Clement Godson ...	1	1	0
Mr. C. T. Carnes	2	2	0
Balance at disposal of the South-East Branch of the British Medical Association, per Mr. T. J. Verrall	35	11	9
Dr. J. Mitchell Bruce ...	2	2	0
Dr. J. F. Goodhart ...	3	3	0
Sir John Puleston	2	0	0
Dr. R. M. Miller	1	1	0

The amount now subscribed is £422 16*s.* 9*d.* and an additional sum of £100 is required to carry out the proposed scheme of erecting an art and reading room at Epsom College. A further and, it is to be hoped, final list will be published in a month's time. Subscriptions of any amount will be received by Dr. John H. Galton, Chunam, Sylvan-road, Norwood, or by Mr. W. A. Berridge, Oakfield, Redhill, Surrey.

TAXATION OF CATS.

AT the last meeting of the Church Society for the Promotion of Kindness to Animals, held on July 1st at the Church House, Westminster, a paper was read by Mr. F. G. Aflalo on the Taxation of Cats. Mr. Aflalo advocated the imposition of a 2*s.* 6*d.* tax upon cats, advancing as reasons in support of his argument that a tax would raise the value of the animals and lead to their more humane treatment, while the revenue might be a considerable gainer thereby. The views of Mr. Aflalo received the endorsement of the meeting and for our part we agree with them. The rôle played by domestic animals in the propagation of disease is as yet ill-understood but cats of all domestic animals are the most nursed. They live in dangerous intimacy with many families and we welcome any departure likely to lead to the diminution of their number and to an increase in their individual value which will imply additional care as to their health.

THORNE DEFENCE FUND.

To the Editors of THE LANCET.

SIRS,—We beg to inclose a final list of subscriptions. The taxed costs, which are less than was originally expected, amount to £177 9*s.* 1*d.* This sum, added to the £25 damages which were awarded, brings the total expenses to £202 9*s.* 1*d.* The amount raised by subscriptions is £219 2*s.* It has been decided to divide the balance of £16 12*s.* 11*d.* equally between the New Hospital for Women and the Royal Free Hospital. It is hoped that this distribution of the surplus will meet with the general approval of the subscribers.

We are, Sirs, yours faithfully,
WALTER S. A. GRIFFITH, M.D. Cantab.
WALTER TATE, M.D. Lond.
DOUGLAS DREW, F.R.C.S. Eng.

Queen Anne-street, Cavendish-square, W., July 6th, 1904.

	£	s.	d.
Amount previously subscribed	206	12	0
Dr. W. A. Wills	1	1	0
Dr. Janet Gray	1	1	0
Dr. Caroline Sturge ...	1	1	0
Sir Thomas Smith, Bart.	2	2	0
Dr. Jane Walker	2	2	0
Dr. Raymond H. P. Crawford	1	1	0
Dr. Jessie MacGregor...	1	1	0
Dr. Beatrice Harrison...	1	1	0
Total	£219	2	0

Sigma.—We do not think there is much evidence to support our correspondent's view, especially as ptomaine poisoning is often to be traced to meats which have not been sealed in tins and in which there are no well-marked or outward signs of putrefactive processes having taken place.

R. S. F.—Salicyl-sulphonic acid may be obtained from most dealers in chemical reagents. It is quoted in the list of Messrs. Baird and Tatlock of 14, Cross-street, Hatton-garden, London, E.C.

J. P. S.—We sympathise with our correspondent's view, speaking generally, but we do not think his letter has been aroused by any very glaring piece of snobbery.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (12th).—SOCIETY FOR THE STUDY OF INEBRIETY (Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Discussion on the Criminal Responsibility of the Alcoholic (opened by Dr. W. C. Sullivan).

WEDNESDAY (13th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

THURSDAY (14th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Mr. C. Martin, Dr. Macnaughton-Jones, and Mr. B. Jessett. Dr. J. Aarons: New Instrument.

NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8 P.M. Clinical Meeting. Exhibition of Cases of Myelopathic Muscular Atrophy.

FRIDAY (15th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (Victoria Hall, Hotel Cecil).—6.30 P.M. Mr. R. C. Lucas: The Hereditary Bias and Early Environment in their Relation to the Disease and Defects of Children. (Wightman Lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (11th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Mr. J. Berry: Some Practical Points concerning Colotomy.

TUESDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Carr: Clinique. (Medical.) 5.15 P.M. Sir Isambard Owen: Cardiac Failure.

WEDNESDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Practical Medicine.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. L. Cheatle: Clinique. (Surgical.) 5.15 P.M. Dr. S. Taylor: Hæmoptysis and its Treatment.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. P. Horton-Smith: Demonstration of Unusual Specimen of Chest Disease from the Museum.

ST. PETER'S HOSPITAL (Henrietta-street, Covent Garden).—4 P.M. Mr. S. Edwards: Cases in the Wards.

THURSDAY (14th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. P. Dunn: Ocular Injuries and their Treatment.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Dr. S. Taylor: Hæmoptysis and its Treatment.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Dr. F. Price: Aortic Stenosis (illustrated by cases). (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Voelcker: The Treatment of Diphtheria with especial Reference to the Dosage with Antitoxin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. A. de Prendergville: On the Choice of an Anæsthetic.

FRIDAY (15th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Ball: Suppuration of the Accessory Sinuses of the Nose (with lantern slides).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. S. Stephenson: Clinique. (Eye.)

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1904, which was completed with the issue of June 25th, and the Title-page to the Volume, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1904 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 7th, 1904.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
July 1	29·86	W.	...	125	73	57	56	62	Cloudy
,, 2	29·95	W.	0·07	119	70	54	55	61	Cloudy
,, 3	29·99	W.	0·05	103	68	56	57	58	Raining
,, 4	30·08	W.	0·28	124	71	53	55	61	Cloudy
,, 5	30·00	S.W.	...	70	67	57	59	61	Overcast
,, 6	30·08	S.W.	...	123	77	56	59	64	Fine
,, 7	30·15	W.	...	81	68	59	60	64	Overcast

During the week marked copies of the following newspapers have been received:—*Bradford Times, Bournemouth Daily Echo, Worthing Mercury, Weekly Record (West Indies), Port of Spain Gazette, Hertfordshire Mercury, Westminster Gazette, Daily News, Hyde Reporter, Reading Mercury, Local Government Chronicle, Liverpool Daily Post, Aberdeen Free Press, Ipswich Times, Coventry Herald, Windsor and Eton Express, Cardiff News, Surrey Advertiser, Birmingham Daily Mail, Literary Digest (New York), Scientific American (New York),* &c.

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